Networked learning: evaluating the effectiveness of distance education in comparison to traditional education

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NETWORKED LEARNING: EVALUATING THE EFFECTIVENESS OF DISTANCE EDUCATION IN COMPARISON TO TRADITIONAL EDUCATION

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agriculture and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in

The Department of Educational Theory, Policy and Practice

by
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This dissertation is dedicated to my best friend, John and to my two daughters Eboni and Essence. I appreciate all of your sacrifice, love and support, and I know that the Father holds a special place in His heart for each of you.
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ABSTRACT

The purpose of this study was to evaluate the effectiveness of alternative course delivery methods, which can ultimately help higher education stakeholders make informed decisions for present and future educational endeavors.

Emerging systems of educational technology, such as ‘networked learning’ and the increasing development of online courses have created many questions concerning the effectiveness of online learning relative to face-to-face learning. More research supporting online as an effective alternative to traditional education is needed as an evaluative tool to potentially mitigate the budgetary constraints, which pose a threat to the institution’s ability to fulfill their mission of providing a quality education to their students. Specifically, community colleges have the highest enrollment growth rate and account for half of higher education enrollment over the last five years (Allen and Searman, 2007), but unfortunately, smaller, public and community colleges have not historically invested in distance education (Janes, 2003).

Community college students and faculty were participants in this quasi-experimental research study, in which the findings support that online courses are popular overall with students, as indicated by the total number of students who enrolled in these courses, but, unfortunately, students who enroll in online courses are not as successful as the students enrolled in on-ground courses. A contributing factor to the popularity of online courses in community colleges, as in setting of this research, is the fact that there is no on-campus housing; all students live off campus. Furthermore, the higher rate of online non-completers could be due to the fact that community college students are usually at a disadvantage, subject to more characteristics that negatively impact their
success in college, including scoring lower in high school, delaying college after high
school, attending part-time, and coming from families who are in the lower socio-
economic status (Bailey, Jenkins & Leinbach (2005).

The results of this study indicate that minorities perform worse online than
onground. Females are more likely to be unsuccessful at an on-ground course but more
successful online. Traditionally aged students (18-24 years) generally are less successful
than non-traditional students (25 and older) in online courses.
CHAPTER ONE: INTRODUCTION

The Economic Condition of Higher Education

In 2008, the United States’ economy veered deep into a state of recession, otherwise known as the ‘Great Recession’, which was indicative of record unemployment levels, mortgage foreclosures, bank failures, stock market plummet, and government bailouts. After four years, there are signs that the economy is recovering due to careful planning and economic stimulus incentives set forth by the Obama administration, but, unfortunately, the lagging effects of the economic crisis are ever present in the educational sector, especially higher education. The Delta Project on Postsecondary Education Costs (2010) compares the ‘Great Recession’ of 2008 to former ones in terms of the impact on higher education:

[unlike earlier recessions, when revenues were expected to rebound within a few years, the consensus now is that the ‘new normal’ means that higher education has seen a permanent reduction of roughly 10 percent of its revenue base—more in some areas of the country, less in others—monies that won’t be coming back, and can’t realistically be made up in tuition increases (p. 5).]

Historically, poor economic conditions contribute to increasing higher education costs, decline in federal and state funding, and decrease in revenues and endowments (Janes, 2003). These conditions further result in higher education institutions heavily relying upon faculty and institutional advancement positions to write for federally funded grants, compete for private funding dollars, and generate as much capital as possible.

The collective deficit of the United States has tremendously decreased the public funding of higher education because there are fewer taxpayer-provided-dollars. A decline in taxpayer-provided-dollars creates higher education budget-cuts, in spite of whether or not higher education institutions are experiencing an enrollment increase. Incidentally,
before the economic crisis, the increase in higher education enrollment resulted from older adults, minorities, and women seeking high-quality education programs (Davidson-Shivers, 2002); however, since the economic crisis, there are additionally the unemployed and under-employed returning to college to seek training (Bradley, 2010), further increasing enrollment. Because of higher education dilemmas, such as increased enrollment in a time of decreased funding, the American Association of State Colleges and Universities (2010) suggests there is a necessity to explore several higher education policy issues, as the country faces difficult decisions on the path of economic recovery. Some of these policy issues include: tuition policies and practices, enrollment capacity, state student aid programs, and federal focus on community colleges.

**Economic Initiatives in Higher Education: the Community College**

While higher education as a whole is subject to both economic challenges and initiatives, an exploration of community colleges is important because jobs requiring at least an associate degree are projected to grow twice as fast as those not, making an immediate investment in communities colleges crucial (Lothian, 2009). Furthermore, Community College Week (2010) quoted George Boggs, the president of the American Association of Community Colleges explaining that,

‘[c]ommunity colleges enroll 54 percent of the public higher education students, and the students with the most challenges, while receiving 28 percent of the higher education local state, and federal revenues.’ (p.3)

Even though several economic initiatives of higher education as a whole have been launched on the local, state and federal level to mitigate the economic issues facing the sector, policymakers must continually consider innovative ways to support the growing need of community college education.
Furthermore, the researcher conducting this study witnessed first-hand the challenges facing higher education, specifically community colleges, while working at the Louisiana Community and Technical College System (LCTCS) from January 2006, which was immediately following the catastrophic effects Hurricane Katrina made to the Southern Region, including community and technical college campuses, until 2009 when the entire country was facing another catastrophic event, the Great Depression. While working as the Assistant Director of Facilities and Risk Management, the researcher began honing the idea of distance education as an effective alternative to traditional education, which led to this research study to determine what factors can be used to measure the effectiveness of one mode of delivery in comparison to another, which will ultimately help stakeholders in their quest to determine whether distance education is a viable alternative to traditional education in terms of effectiveness. While cost-effectiveness studies are often performed considering both components, cost and effectiveness, this study specifically focuses on effectiveness. Therefore, initiatives at all levels of government that are affecting community colleges and their governing bodies are a key component when exploring the present state of community colleges.

The American Graduation Initiative introduced by President Barak Obama describes the federal setting of higher education in terms of economic initiatives. The State of Louisiana’s setting is described by: 1) a recent increase in public higher education tuition; and, 2) workforce investment strategies to provide additional funding for the Louisiana Community College System in the face of historic higher education budget cuts. Initiatives in the local setting are described by the rapid growth of Baton Rouge Community College, the community college providing data for this study in lieu
of lay-off avoidance/labor-reduction initiatives because of budget-cuts. All three settings, federal, state and local are detrimental to understanding the present-day synergy of the higher education sector, specific to community colleges to ultimately explore educational alternatives for a more efficient system in a time of economic strife.

**National Higher Education: The American Graduation Initiative.** In 2008, President Obama announced the American Graduation Initiative as a plan to graduate an additional five million community college graduates by 2020, a 10-year, $12 billion dollar plan to invest in American community colleges. Specifically, the plan includes $2.5 billion to help community colleges perform facility renovation and maintenance. The plan also provides funds for the opening of online courses to “to create options online as a tool that some think can be more effective than classroom instruction alone” (para 3. Lothian, 2009). The President envisions the United States leading the world in graduates once more, and this initiative is an investment toward reaching this goal. In a review of the President’s initiative, Tom Vander Ark, a partner in Vander Ark/Ratcliff, an education public affairs firm and a partner in a private equity fund, focused on innovative learning tools and formats (2009) writes:

> [p]lacement exams are the big hidden gateway in American education--young people fail the test, get sent to remedial courses to learn what they should have learned in high school, and drop out. High school exit exams should be community college entrance exams--pass one exam and you can graduate and start earning college credit (para. 4).

The infusion of federal funding to community colleges affects states in terms of capital and workforce development, because community based partnerships between colleges and businesses are a focus of the $9 million challenge grant that is a part of the American Graduation Initiative program.
State Higher Education: Louisiana Workforce Initiative. Although federal stimulus money was channeled to states, such as Louisiana, in 2009 for higher education, these funds were expected to exhaust within a year (AASCU, 2010). A current debate is whether tuition increases are necessary to mitigate the decrease in federal funding, especially in states such as Louisiana, where the state legislature has to approve higher education tuition increases by a two-thirds vote. Coincidentally, in 2010, the Louisiana State Legislature approved a tuition increase for all of Louisiana’s public colleges. Deslatte (2010) explained that four-year and two-year colleges were allowed tuition increase implementation between eight and ten percent but were also required to improve their performance. Participating colleges and universities entered into a voluntary agreement with their governing body, the Louisiana Board of Regents (BoR) to meet performance benchmarks by the 2012-2013 school year or relinquish their tuition increase.

As a preamble to the lagging effects of the ‘Great Recession’ and the impeding tuition increase in the State, Governor Bobby Jindal launched a comprehensive workforce redesign plan in 2008 to strengthen and prioritize community and technical programs to match workforce needs. The State of Louisiana (2008) wrote:

> [t]he legislation sets aside $4.6 million for implementation in the first year and establishes a $10 million workforce training rapid response fund to allow the Community and Technical College System to respond more effectively to urgent workforce opportunities and challenges, aimed primarily at meeting priority workforce needs (para. 9).

Although the governor’s appropriation was timely and several community college programs have been funded to date, the economic State of the Union created a need for historic higher education budget cuts in the State of Louisiana during 2009, which
continued throughout 2010. The American Association of State Colleges and Universities (AASCU, 2010) explained that forecasts suggest state revenues will not return to pre-recession levels until 2013. Since 2009, more than $250 million in state funding to higher education was cut (Deslatte, 2010). The Louisiana Community and Technical College System (2009) documents several challenges facing the State of Louisiana in terms of workforce development, warranting a re-evaluation of the way community and technical colleges engage in the business of education:

- One in five adults (aged 18-24) in Louisiana have not finished high school.
- The number one reason given by companies for not locating to Louisiana is a lack of a qualified workforce.
- At least 55% of all new jobs in the State of Louisiana will require 1-2 years of specialized education and training, but only 8% of the high school graduates go to community and technical colleges to develop the knowledge, skills and abilities required for these jobs.
- Every hour of every day, two people leave the State of Louisiana to pursue better opportunities. (para. 8)

**Local Higher Education: Baton Rouge Community College.** The BoR and the Louisiana Community and Technical College System (LCTCS) govern Baton Rouge Community College (BRCC). All public higher education in Louisiana is governed by the BoR, a state agency created by the 1974 Louisiana Constitution to plan, coordinate, and have budgetary responsibility for the Louisiana public higher education community as a policy making and coordinating board only, for it is not directly involved in
overseeing the day-to-day operations of the various college campuses (BoR, 2010). The 1974 Louisiana Constitution reserved the day-to-day operational rights of the various campuses to the four higher education management boards of the State of Louisiana, one of which is the Louisiana Community and Technical College System Board. LCTCS was created in 1999, as the management board for Louisiana public two-year institutions. The mission of LCTCS is to improve the quality of life of the state’s citizens through the educational programs offered by the system and to ultimately increase the opportunities for Louisiana’s workforce to succeed through skilled training programs (LCTCS, 2010). Unfortunately, budget cuts continue to impede not only the mission of LCTCS, but all higher education in Louisiana, which is evidenced by the reduction of four-year institutions’ budgets three times since January 2009 and two year institution’ budgets twice. (EducationNewsToday, 2010).

Of the nine community colleges that are a part of LCTCS, Baton Rouge Community College has sustained the largest budget cuts to date, implementing more recently a 9.4% decrease in state funding or 1.76 million (EducationNewsToday, 2010), which limits the college’s ability fulfill their campus mission, which is to identify and meet the educational needs of the 8-parish community that it serves by providing dynamic programs, accessible to all (BRCC, 2010). To mitigate the recent budget cuts, BRCC, like other higher education institutions implemented lay-offs, eliminated unfilled jobs, offered fewer courses, delayed maintenance, reduced library and equipment purchases, and reduced/eliminated staff/faculty travel (BRCC, 2010). Unfortunately, budgetary cuts can also contribute to students taking longer to finish school because of filled classes and fewer offered sections (EducationNewsToday, 2010).
In spite of recent budget cuts and the inherent effects thereof, Baton Rouge Community College over the last two years ranked 47th of the 1200 community colleges located in the United States as fastest growing (Community College Week, 2010), which is an integral part of the decade-long upward trend in community college enrollment. There are concerns of whether Louisiana community colleges, such as BRCC, are growing too fast too soon during this time of decreased funding. Community College Week quotes the president of LCTCS explaining that ‘enrollment growth will outpace permanent infrastructure (growth)’ (p. 4).

**Effectiveness of Distance Education and Traditional Education**

Because higher education institutions must meet the current needs of students while maintaining operational costs within budget constraints, student outcomes or effectiveness is important. Effectiveness in terms of student outcomes between various delivery methods is usually measured using indicators such as student achievement, including grade distributions and examinations, course completion and retention rates, learning styles and critical thinking skills (NVCC, 2002).

Effectiveness in the form of student achievement is important from all stakeholder perspectives because of its direct relationship to student retention and course development or instructional design. But, unfortunately, there are few studies that evaluate the ability of distance education in the form of online delivered courses to meet predetermined goals (Bartley & Golek, 2004). Miller and King (2003) note several problems or issues with distance education, especially the online asynchronous courses. One of the most troublesome problems is the rate of retention, which includes hundreds of thousands of students. Some of the factors that contribute to course non-completion in
distance education are the lack of feedback, feelings of isolation, frustrations with the technology, anxiety and confusion (Miller & King, 2003). Lack of feedback and timely feedback is an ongoing problem in distance education, which is attributed to the instructional design of the course. Furthermore, the instructional design of a course influences all student outcomes or effectiveness components. Oftentimes instructors act as instructional designers, which is a major part of evaluating design technologies and utilizing delivery technology. Clark (1994) explains that while delivery technologies influence the cost and access to instruction and information, design technologies influence student achievement. He further explains that researchers must not confuse the two.

Instructor attitudes are directly linked to instructional design because oftentimes instructors are required to design an online course, which oftentimes takes more time than a traditional education course and there is no additional compensation (NEA, 2000). Instructors delivering online courses sometimes experience frustration and a feeling that they are underprepared, requiring institutional support through training, (Wilson 2000) but, overall, instructors are willing to use technology to support student learning.

Therefore, the aspects of instructional design, instructor attitude, instructor support, and instructor expertise are important considerations in terms of the student’s perception when evaluating alternative course delivery modes. To further investigate these aspects, demographic details concerning enrollment trends are important in an effort to understand whether there are trends in gender, race and age when students self-select course delivery methods.
Statement of the Problem

Educational research is deemed lacking credibility because there is a failure to employ credible research models to relate research into practice (Burkhardt & Schoenfield, 2003). These authors suggest that ‘research to practice’ or shorthand ‘R↔P’ models that are utilized in research and proven effective will increase funding for educational research. Burhardt and Schoenfield (2003) explain that while organizations in applied fields such as medicine, engineering and electronics spend 5 to 15 percent of turnover on research and development expenditures and 80 percent on design and systematic development, ‘the U. S. House Committee on Science (1998) reported that the U.S. spends approximately $300 billion a year on education and less than $30 million, 0.01 percent of the overall education budget on educational research’ (p. 46). Long-term commitment to enhancing the educational system seems unrealistic with such miniscule investment.

Burkhardt and Schoenfield (2003) further posit that even the clients of educational research, administrators and instructors, rarely employ educational research because of a lack of models that relate research into practice. More research that is related to practice is warranted in the area of distance education, specifically online education in comparison to traditional education in terms of effectiveness or outcomes, like the research which is conducted by the Sloan Consortium (Sloan-C), who are working to lessen the gap between research and practice with the development of a quality framework focusing on ‘five pillars,’ supporting a quality-learning environment to improve online education in learning effectiveness, access and affordability, including
how to use mainstream best practices and combine asynchronous learning to learning networks (Moore, 2002).

Furthermore, the findings from the research present a problem in determining a standard means to measure the effectiveness of online courses in comparison to face-to-face courses. Emerging systems of educational technology, such as ‘networked learning’ and the increasing development of online courses by traditional and distance education institutions have created many questions concerning the effectiveness of online learning relative to both face-to-face. More research that supports online as an effective alternative to traditional education is needed as a tool that higher education policy makers and administrators can use to assist them as budgetary plans are made for their institutions. Budgetary constraints in higher education pose a threat to their ability to fulfill their mission, to provide a quality education to their students. Institutions are offering fewer courses, hiring less full-time faculty and more adjuncts, cutting programs, and increasing tuition. While many institutions offer online courses and their traditional counterparts, research concerning which courses, if any are best suited for online delivery, enrollment trends or who enrolls in online courses, students’ perceptions of online courses, and student completion rates are among key resourceful research components that can lead to successful practice trends.

But, unfortunately, smaller, public and community colleges have not historically invested in distance education (Janes, 2003) even though community colleges have the highest enrollment growth rate and account for half of higher education enrollment over the last five years (Allen and Searman, 2007). Allen and Searman (2010) reported that
over 25% of U. S. college students enrolled in online courses in 2008, in which the growth rate of online exceeds the overall growth rate of higher education.

Specific to this study, Baton Rouge Community College is growing rapidly with students and gaining popularity within the community without an increase in federal funding. Recently, the Louisiana Community and Technical College System launched a distance education initiative, LCTCSOnline, which makes all colleges in the system, including BRCC, available for enrollment virtually, through one portal, which can be accessed through mobile technology. Higher education as a whole, including LCTCS and BRCC can benefit from current evaluative research, such as distance education compared to traditional education, which leads to successful practice.

**Purpose of the Study**

The purpose of this study was to evaluate whether distance education courses, specifically delivered in the online environment differ from traditional education courses or those delivered on-ground based upon student course attrition, final grades, and student’s perceptions of the course and faculty based upon the instructional design of the course, the instructor’s attitude, support and expertise. Student demographics, such as age, race and gender were also explored to determine if there was a difference in online and on-ground courses in the area of attrition and student final grades.

**Research Questions**

Presented below are the research questions that will be investigated in this study:

1. Do distance education courses differ from traditional education courses in terms of attrition overall, between courses, and within courses, to include: Financial
Accounting I, Financial Accounting II, English Composition I, and Introduction to Computer Technology?

a. Do distance education courses differ from traditional education courses in terms of attrition for male compared to female students?

b. Do distance education courses differ from traditional education course in terms of attrition for ethnicity or majority compared to minority students?

c. Do distance education courses differ from traditional education courses in terms of attrition for age or traditional compared to non-traditional students?

2. Do distance education courses differ from traditional education courses in terms of final grades overall, between courses, and within courses, to include: Financial Accounting I, Financial Accounting II, English Composition I, and Introduction to Computer Technology?

a. Do distance education courses differ from traditional education courses in terms of final grades for male compared to female students?

b. Do distance education courses differ from traditional education course in terms of final grades for ethnicity or majority compared to minority students?

c. Do distance education courses differ from traditional education courses in terms of final grades for age or traditional compared to non-traditional students?
3. Do distance education courses differ from traditional education courses in terms of the student’s perception of the instructor based upon the following components:
   
a. Instructional Design;
b. Instructor Attitude;
c. Instructor Support;
d. Instructor Expertise; and,

   **Significance of the Study**

   By evaluating distance education courses as an alternative to traditional education courses, contributions will be made to the existing body of knowledge with current research using measurable educational outcomes because there is a need for higher education online research, specifically in community colleges (Ashby, Sadera, McNary, 2011) Furthermore, this research controls for instructor, exploring different courses delivered in each mode, and evaluating student’s perceptions. Few studies have been conducted where the same instructor taught both the online or distance education version of the course and the on-ground or traditional education version of the course. This study also includes both delivery modes of four different courses, which are Financial Accounting I, Financial Accounting II, Introduction to Computer Science, and English Composition I, which contributes to understanding the effectiveness not only as it relates to delivery, but also as it relates to individual courses delivered in both modes. Furthermore, this research contributes insight from the student’s perception of online versus online courses, overall and for specific courses.
Definition of Terms

**Academic Grade or Grade**- The acknowledged academic achievement of a student based on the grading scale of “A”- equating to excellence, though “F”-equating to failure in the educational environment.

**Associate Degree**- Associate degrees are typically offered through community and technical colleges and are indicative of two-year programs of study and training in a specific area of learning geared to entry into the workforce.

**Attrition or Rate of Attrition**- Attrition or the rate of attrition is characterized by a student’s departure from an enrolled course, in which in this study is a number or percentage of those who, 1) received an ‘F’ as their final grade, 2) withdrew from the class, or 3) received a zero as their final grade compared to those who were initially enrolled in the course at the 14th day count that the college reported to the Board of Regents.

**Cost effectiveness analysis**- Cost effectiveness (CE) refers to alternatives according to both their costs and their effects with regard to creating some type of outcome (Levin & McEwan, 2001).

**Course Success**- Usually course success is when a student has a ‘C’ or above in a course that they are taking for credit, but for this study, students who earned a ‘D’ or above have course success.

**Course Management System (CMS)** - A computer software program used to deliver courses through the Internet. While there are many brands of CMS, Baton Rouge Community College during this study uses the Blackboard Course Management System.
**Distance Education (DE)**- The formal education process in which the student and the instructor are not in the same place (National Center for Education and Statistics, 2009).

**Effectiveness**- The quality of attainment in meeting the objectives, for this study measured by course attrition, student final grades, and student perceptions from a survey instrument.

**Face-to-face Education/Learning**- This term is used synonymous to traditional education, which is used to describe teaching and learning that uses face-to-face contact.

**Grades**- Standardized measures of varying comprehension within a subject area, which are assigned letters A, B, C, D, and F, as a range of 4.0-1.0, as descriptors of academic progress or standing.

**GPA**- This is the grade point average as derived from course grades.

**Majority Student**- For this study, a majority student is a student who is of the Caucasian race.

**Minority Student**- For this study, a minority student is a student who is of a non-Caucasian race.

**Non-traditional student**- For this study, a student who is 25 years and older is considered a non-traditional student.

**Onground**- Course or coursework that is synonymous with traditional education or learning.

**Online Learning**- This is technology enhanced learning using the Internet.

**Student Information System (SIS)** – This is a software application that helps educational establishments organize and manage student data. During this study, Baton Rouge Community College uses the Banner Software SIS.
Traditional Education/Learning- The method by which a course is taught or delivered to students through 16-week, semester long courses taught face-to-face, meeting on a weekly basis as opposed to being offered in the untraditional format of Web-based or Internet.

Traditional Student- For this study, a student that is 18-24 years of age is a traditional student.

Unsuccessful Course Completion- This is indicative of a student making a ‘F’ s their final grade, making a zero as their final grade or withdrawing from a course.
CHAPTER TWO: REVIEW OF RELATED LITERATURE

Introduction

Jakapec (2000) suggests that without the evaluation of learning and performance achieved by online programs, stakeholders face a possibility that the organization will cease to place support in favor of effective training programs. Furthermore, Fisher (2005) explains that there is no other place clearer than online learning and technology, whereby its nature is an excellent source of cost and effectiveness evaluation. Just as the economy has leading and lagging indicators to determine its cyclical direction or when effective measures are more warranted, education has the same type of indicators. Foley, Mishook, Thompson, Kubiak, Supovitz, & Rude-Faust (2008) explain that indicators in education are just as important or more than those in the economy because growth in education is not cyclical but can be sustained over a period of time. These authors posit that leading indicators in education provide early signs of progress towards academic achievement, which ultimately help educational stakeholders and policymakers, make decisions to improve student success. Foley et al. (2008) further clarify that the challenge in fields such as education is to “develop sets of indicators that not only reflect key investments, but also incorporate measures of important conditions that are known to be associated with improvement” (p. 2).

Historically, educational conditions have been measured by effectiveness components, such as pedagogical principles, enrollment, including retention, and course design and development, yet the extent to which faculty participate in distance education has not been extensively researched or explored (Johnsrud and Harada, 2006). Pedagogical principals for online learning are explored in distance education in terms of
student achievement (DiRamio & Wolverton, 2003). Enrollment, in terms of meeting the existing needs of high demand classes and changing student demographics because of an increase in adult learners is an important consideration, along with the retention of those enrolled. Carr (2000) explains that anecdotal evidence and studies by individual institutions suggests that course completion and program-retention rates are generally lower in distance education courses that in their face-to-face counterparts, which is contributed to course demographics, such as age. Retention and program development and implementation for both DE and traditional education courses are considerations because of concerns of quality. Therefore, literature concerning the effectiveness of the learning network, whether a course is delivered online or on-ground is explored in this chapter relative to key stakeholders, the instructor and the student.

Instructors and Effectiveness Analysis

Introduction

Instructors are an intricate part of student success in both the distance and traditional education environment, but unfortunately, teaching and learning processes are left unmeasured in effectiveness research, which measures the effectiveness of online learning (Cohen & Nachmias, 2006). Faculty, now more than ever, are faced with not only organizing course content and accommodating students in the traditional course environment, but also, using instructional design techniques to transform the traditional course into a course delivered in the DE environment. This process often takes additional training and time, which is an integral factor of the division-of-labor when considering effectiveness analysis and instructors. Rumble (2001) explains that the division of labor is important because if the design is limited to just a few people and not around the division of labor, then it is not efficient and can serve fewer students. Furthermore,
inefficiency is not the only concern, but faculty who are required to develop distance education courses are also concerned about not being allowed the time to develop the course. Willis (1993) explains that the success of distance education is largely attributed to the effort of faculty because the instructor’s role is not only the task of assembling the content of the course and understanding the needs of students, like in the traditional setting, but there are also, additional challenges the instructor faces in the distance education setting, where the instructor must:

- Understand the needs and characteristics of the distance education student with limited face-to-face contact.
- Adapt their teaching styles to accommodate the needs of not only multiple audiences, but also audiences that are diverse.
- Focus on their roles as a teacher while developing and/or maintaining a working knowledge of course delivery technology.
- Maintain a role as both facilitator and content provider (p. 38).

Coincidently, the single most critical resource in providing quality instruction is faculty participation (Johnsrud and Harada, 2006). Therefore, important effectiveness considerations of the instructor are: 1) instructional design, 2) attitudes and distance education, and, 3) compensation and time teaching.

**Instructional Design**

One of the most important lessons learned from the 20th century is that less is known about how people learn, and instructional design and planning is more complicated than ever (Steeples and Jones, 2002). Instructional design is the development of materials for instruction, including learning activities in order to meet learning needs.
One of the forefathers of instructional design was Sidney Pressley, who developed a machine to help students learn through a method of drilling. Pressley believed his machine would allow teachers more quality time in the class with students to inspire them. Pressley, inspired by Edward Thorndike, cleaved to the premise that a student should master one idea before advancing to another (University of Houston, 2007). Pressley was sure to include the laws of recency, effect, and exercise in his learning tool, the machine. Users of the machine were required to correctly answer questions several times before advancing to the next question to satisfy effect and exercise. In the case of recency, the correct answer was always the last one answered and allowed the user to advance to the next page.

Since the time of Pressley, the machine has advanced to the modern computer and computer-based testing. Many computer programs are designed to enhance the classroom experience, providing the same laws as in Pressley's day. Schools are equipped with computer learning labs to teach new skills, provide practice, or facilitate remedial needs. A simple computer program frees-up teachers and/or instructors from certain drilling practices. Computers, through the use of the Internet, are one of the most important aspects of distance education; creating the notion that learning does not have to take place in a certain place. Harasim (2000) postulates that,

Just as in classroom education, the instructor must organize the learning events according to topic, task, group, and timeline to support group discussions, activities and assignments. However, the design requirements of the computer conferencing medium are different, in important ways, from face-to-face communication. (p. 51)

Therefore, instructional design, along with other aspects of distance education is an important consideration because of the impact on instructor attitude.
Instructor Attitudes

Dobbs (2005) reports that some instructors have a negative attitude towards distance education due to the fact that they are concerned about the quality of education obtained through distance education or online methods, such as video-conferencing. A lack of training on the technology attributes to these negative attitudes. In a study at Texas State Technical College, 27 full-time faculty were divided into three groups of nine participants. The first group participated in the classroom portion of the distance education training activities. The second group not only participated in the classroom training, but also, 18 hours of hands-on training in the distance-education environment. The third group was the control group. The Stages of Concern (SoCQ) was administered to the participants as a pretest and posttest. An analysis of variance (ANOVA) was used on the pretest or the covariate of the stages of concern, in which significant F ratio was found at the p < .01 level of confidence in five of the stages of concern and at the p < .05 level of another stage of concern; therefore, the need for covariate analysis was indicated. An ANCOVA was then used to analyze the data. Results for the experimental populations in the study suggest significant differences favorable to a decrease in fear with training prior to teaching using videoconferencing and classroom training combined with laboratory or hands-on training is most effective (Dobbs, 2005).

Furthermore, in a case study performed by Kentucky’s higher education system, faculty were revealed as willing to use the technology for distance education but required additional support from the institution (Wilson, 2001). The purpose of the research study was to assess the hypotheses about faculty responsible for developing and delivering courses at the Kentucky Virtual University (KYVU). Faculty was hypothesized as
“unwilling, unprepared, unrewarded, and unsupported by the university infrastructure” (p. 70). A needs assessment instrument was developed with 100 five-point, likert-type questions, along with an open-ended question for additional comments. The entire nine state-supported higher education institutes’ faculty was the population of the study (N = 7,173), but through statewide data analysis, a stratified random sample (n = 1,500) was drawn, consisting of full-time faculty. Interview formats for participants included, a semi-structured telephone interview for individual participants and focus group interviews that included both instructor and administrative participants. There was a response rate of 46 percent with 687 surveys returned.

Wilson (2001) documents that the results of the study indicated that Kentucky faculty were:

- Ranking distance education as the least effective mode of instruction
- Feeling unrewarded for their work in instructional technology
- Feeling underprepared in areas related to online instruction
- Feeling motivated to use instructional technology to improve student learning
- Feeling under-supported by the university infrastructure
- Ranking financial incentives lowest as motivators.
- Ranking time as the primary barrier to using instructional technology (p. 71)

Even though the results from this research were not significant at the 0.05 level, an important pattern was reported, specifically that the respondents had a positive attitude towards distance education and were intrinsically motivated to participate in distance
education courses, especially if student learning could be facilitated. The respondents generally had a positive attitude (mean = 3.53, standard deviation = 1.06) but were less enthusiastic about personal involvement (m = 3.02, sd 1.13)

Johnsrud and Harada (2005) conducted research to explore faculty’s use of technology and participation in distance education throughout the University of Hawaii system to determine how faculty attitudes influence their use of technology. Participants in the study included 4,534 full and part-time faulty from all colleges divisions and schools in the system. Lecturers and graduate assistants were also included who had instructional responsibilities during the time of the research. A survey instrument was used for the study, which was delivered in three different mailings and there was a web-based version of the survey. The web-based version of the survey yielded 2,048 responses or a 45 percent response, while the paper-based survey yielded a 14 percent response rate of the total.

The researchers employed a case study and a survey instrument to explore faculty participants. Descriptive statistics and background information were used to obtain a profile of the respondents and an ordinal regression was used to further explore their responses to the survey. Some of the significant research findings suggest that faculty are more likely to participate in distance education the more they agree that:

- the quality of distance education instruction and learning is as good as face-to-face instruction;
- their technology skills are adequate; and
- they are able to see the results of distance education delivery (p. 2)
Instructor Compensation and Time Teaching

Instructor compensation and time teaching is important because although distance education is valued by some instructors, there is a lack of reward for using technology, as evidenced in yearly reviews, promotion or tenure decisions; oftentimes, faculty perceive that upper administration values instructional technology more than at the department level (Wilson, 2001). For example, the National Education Association (NEA, 2000) completed interviews with 402 distance learning faculty and 130 traditional learning faculty between February 11 and March 6, 2000, where distance learning courses were defined as those courses in which more than half of the instruction is when faculty and students are in different locations. The results of the study indicated that 53% of the distance learning faculty spent more hours preparing and delivering the distance learning course in comparison to a like traditional learning course. The results of the study also indicated that 84% of faculty who spend more time on their distance leaning course receive no additional compensation.

Schifter (2004) documents research conducted during the summer and spring of 2002 where four national organizations invited their members to participate in an online survey about distance education compensation and incentives. The national organizations included, the National Telecommunications Network (NUTN), the Instructional Technology Council (ITC), the Southern Regional Education Board (SREB), and the Western Cooperative in Educational Technology (WCET). A total of 216 individuals responded to the survey, representing 152 institutions in 43 states. Two-year institutions represented 55 percent of the sample. The results indicated that the most often paid expense for faculty is software purchased, the least covered expense was for graduate
assistants, which is followed by faculty release time and overload pay. The minimum overload pay for developing a distance education course was $0 - $5,000 with an average of minimum overload pay of $1,620. Maximum overload pay ranged from $800 - $7,500, with an average of $2,740. Faculty expenses were more likely to be paid for developing a distance education course rather than teaching one, which may be attributed to full-time faculty responding that teaching distance education course is a part of their normal workload. Schifter (2004) explains the research indicates that developing distance education courses are more highly valued than teaching the distance courses.

**Students and Effectiveness Analysis**

**Introduction**

The most important task of any effective mode of educational delivery is meeting the instructional needs of students, which is the cornerstone of every effective distance education program and the test by which all efforts in the field are judged (Willis, 1993). Bailey, Jenkins & Leinbach (2005) explain that community college students in comparison to those attending baccalaureate universities are subject to more characteristics that negatively impact their success in college, which includes 1) lower scores in high school; 2) likelihood to delay college after high school; 3) attend part time; and 4) likely come from families in the lower socio-economic status (SES).

Because distance learning creates an alternative option to complete coursework, characterized by the ability to go to class via a laptop computer in a coffee shop or a Personal Digital Assistant or PDA on an airplane, while face-to-face courses are locked into designated days at designated times, students are carefully considering their options. There are two general criteria for judging distance education, which are geographical
location and time and these criteria are further divided into four subcategories: same-time, same place (ST-SP); different-time, same-place (DT-SP); same-time, different-place (ST-DP); and different-time, different-place (DT-DP) (Miller & King, 2003).

Likewise, there are several student effectiveness considerations, including: 1) student performance, 2) student perception and satisfaction, 3) collaborative learning, community and distance education, 4) student interaction and performance, and 5) attrition.

**Student Performance**

**Testing and Grades.** Agarwal and Day (1999) used two sections of graduate microeconomics classes and two sections of undergraduate microeconomics classes that they delivered in 1996 to determine the impact of Internet implementation on student performance. Two sections were the control group and the other two sections were enhanced with the Internet. Enrollment for both class levels was approximately equal, 40 in each section of the graduate course and 65 in each section of the undergraduate course.

Data were collected that might affect student performance, such as the mean age, GPA and proportions for gender and race for each of the four sections. Using regression analysis, the researchers determined race and age were insignificant for measures of performance, which included student’s final grades and the score on the Test for Understanding College Economics (TUCE). Once the insignificant variables were excluded from the model, another analysis using regression revealed that the students in the Internet group performed better than the on-ground group on the TUCE exam and received higher final grades in the course. The Internet element for both final grades and the TUCE was significant at the 95 percent level of confidence.
More recent research conducted by Ashby, Sadera, and McNary (2011) sought to explore student performance or success in a Developmental Math course offered in three learning environments, online, blended and face-to-face. Attrition relative to the impact of student success in this research was also explored. The research took place in the summer and fall semesters of an Intermediate Algebra course offered at a large Mid-Atlantic Community College, whereby two instructors taught one or two sections of each of the sections in each of the learning environments. Both instructors worked to create the learning environments and all three-course delivery types used the same syllabus, course content and deadlines to complete each unit. The face-to face course met for three hours either two or three days a week, never required to use online technology. The online environment accessed all course material through the course management software with no face-to-face meetings. The blended class had access to all materials in the online environment as well as meeting weekly face-to-face.

The study used quantitative research methodologies to compare student success in the different environments by measuring whether the type of learning environment relates to successful course performance measured by test, final grade and course grade. Whether the effect of course performance depends on attrition was also explored. A convenience sample was used, including a total of 167 students, 19 percent face-to-face instruction, 26 percent blended instruction, and 30 percent online instruction.

A one-way ANOVA was used to compare learning environments. Tukey’s HSD was applied following significant main effects to compare pair-wise differences. The differences between environments in categorical variables were analyzed using Chi-square tests for significant differences. All statistical tests used a significance level of
\( \alpha = .05 \). Results indicated that there were significant differences between learning environments on the Intermediate Algebra Competency Exam (IACE), the course average and four of the seven unit tests. Students in the blended learning environment had the lowest mean scores. In terms of course average comparisons, the effect size for the face-to-face versus online difference was 0.17 favoring the face-to-face environment. The online verses blended environment was 0.31 favoring the online environment.

The study also used an attrition-adjusted sample, whereby the students who did not complete the course were removed, which changed the results so that there were no longer significant IACE scores between environments, \( F(2,131) = .013, p = .88 \). On the other hand, for unit tests, statistically significant differences were found between the learning environments, but students in the blended learning environment no longer earned the lowest test for assessment. On several unit tests, the students in the fact-to-face environment performed significantly worse. Therefore, when evaluating only the students who completed the course, the face-to-face environment had the lowest success rate, which is due to the fact that online and blended environments have higher attrition rates.

**Student Demographics**

**Gender and Race.** In another study, Argawal and Day (2000) determined that women benefit from using technology more than men. The researchers designed a control-test for an introductory course in macroeconomics, in which the test group was enhanced with media to decrease class time and the control group met traditionally. The media enhanced class of 67 students was divided into smaller classes of approximately 34 students each. There were 74 students who enrolled in the control group. Assessment instruments included, student score on the cumulative final exam for testing retention of
economic concepts and the university administered instructor evaluation. Not only was regression analysis used, as unrestricted regression, but also, the final results used restricted regression with only the variables with significant t-statistics in the unrestricted model. After analysis, the only demographic variable that was significant was gender. The results indicate that men outperform women on the final exam.

Most recently, Jaggers and Xu (2010) conducted a study in the Virginia Community College System with a dataset that included 24,000 students across 23 community colleges in the state. The study tracked first-time students who enrolled during the summer or fall of 2004 through the summer of 2008. Student data included items, such as demographics, developmental placement scores, grades, and educational attainment. Distance education in this study referred to courses with 95% or more of the course’s content offered online. Their study concluded that descriptively women more often enrolled in online courses. Furthermore, after using multi-level modeling techniques, the statistically significant results indicated that online courses were more popular with females (p < .05). Black or African American students and Hispanics were less likely than White students to enroll in an online class.

**Age.** In another study, Howsen and Lile (2008) postulate student demographics are important consideration because older students have higher opportunity costs; they have more human capital. Older students prefer online courses because these courses allow more flexibility with their busy schedule, specifically their work schedule. These researchers used data from student test scores, personal information and a survey completed by each student to test their hypothesis on whether online classes, using a methodological framework result in increased performance. A total of 109 students
participated in the study, which included 31 in a web class and 78 in a traditional class. With regression analysis, the researcher determined that age, measured in years and ACT, measured by the student’s composite score variables were statistically significant and positive, which indicated that as the student increases in age, they are more likely to take an online course.

**Student Perception and Satisfaction**

In 1999, the SUNY Learning Network (SLN), which is the infrastructure created to support asynchronous online courses in the State of New York’s (SUNY) system conducted a research study where approximately 3800 students, who were enrolled in 264 courses were asked to complete an online survey (Swan, 2002). The survey instrument consisted mostly of multiple choice-forced answer questions, which included demographic information; the survey inquired about student satisfaction. While 1406 surveys were returned, only courses in which 5 or more students were enrolled were analyzed because of the researcher’s desire to access the relationship between course design features and student perceptions.

Swan (2002) documents that the correlation analyses in the study showed a significant relationship between the students, instructors and their satisfaction with the course \( r = 0.76, p = 0.01 \). The students’ perceived learning from their instructor \( r = 0.710, p = 0.01 \) also showed a significant relationship. A similar significant relationship was determined between perceived interaction between students and their satisfaction with the courses \( r = .440, p = 0.01 \), including their perceived learning from their classmates or learning from their peers. These research findings suggest that there are three factors consistent with online course structure; 1) a clear and consistent course
structure; 2) instructors who react frequently with students; and, 3) a valued dynamic discussion (Swan, 2002).

McFarland and Hamilton (2005-06) explored whether the lower level of satisfaction that online students express can be overcome if control is exerted over the class so that a student’s experience in an online class is the same the experience in the same that is traditionally delivered. Student feedback at the end of the semester was used to explore this question, whereby online surveys were prepared before the fall 2003 semester and students were asked to complete the survey during the first class meeting. Students completed a second survey at the end of the semester. Both surveys were completed online in a computer lab.

The researchers first conducted a reliability analysis of the survey questions as the statistical analysis for the survey. Then a partial least squares analysis was used to determine the degree to which the survey questions measure the factors, and whether one factor influences one more than the others. The single factor analysis determined that the total explained variance by the retained factors was 76%, while the first factor accounted for 34% of the variance.

Chi-square analysis was used to analyze the survey responses, and the results determined that overall there was no significant difference in course satisfaction between the online and traditionally delivered courses. The factor of how busy students were influenced their satisfaction for both the online ($\beta = .22$, $p = .01$) and on-ground courses ($\beta = .35$, $p = .01$).

**Student Interaction and Perception.** Picciano (2002) moves beyond the research based upon student perceptions and the quality and quantity of their interactions
to examine student performance in an online course in relation to student interaction and presence in the course. A descriptive analysis of interaction, presence, and performance data was collected from a graduate course of Education Administration at Hunter College in New York City for the methodology. While data on student participation were collected throughout the semester from postings on the discussion board, a student satisfaction survey was given at the end of the semester, in which some of the questions were based on the Inventory of Presence Questionnaire.

Students were not required to make a certain number of postings in the discussion board each week, but they were told that a portion of their grade for participation was based on their participation. The correlation analysis on actual student postings with actual student performance was positive but not statistically significant (Picciano, 2002). The correlation between student perception of social presence and the written assignment was statistically significant and positive. The results of the study supports the strong relationship between student interaction and their perceived learning, but the relationship of actual measures of interaction and performance is mixed and inconsistent. Picciano (2002) suggests a need for further study on how interaction affects learning outcomes and the relationship between the two as a pedagogical phenomenon.

**Student Collaboration and Community**

Distance education must move beyond creating feelings of isolation amongst students and move towards fostering community and personal attention (Rovai, 2006) as suggested by collaborative learning. Amelung (2007) suggest that sociality is a current trend in distance or e-learning. The social nature of learning is considered important; therefore, instructors and instructional design leaders must recognize that people make
sense of information through interactions that support internalization and externalization. E-learning environments becoming more adaptive to the needs of learners facilitate social learning. Tacit forms of communication are employed to achieve sociality, such as user awareness, co-presence, and social navigation (Amelung, 2007). Amelung presents a Context-Aware Activity Notification System (CANS) to account for the evolving nature of the e-learner’s social context. CANS is a new model, which serves as a mechanism to collect data for studying the effects of notification on learner actions and interactions. Because the common complaint of students concerning course management systems centers upon the inability to find important course information, notification tools such as the CANS make activity in the course management system more visible to users by delivering fewer, yet more relevant notifications to e-learners.

DiRamio and Wolverton (2006) attribute collaborative learning communities as a course design strategy successful in confronting the challenges associated with attrition and retention in online distance education. These professors document the attrition rate of Internet courses being higher than average, but this varies from institution-to-institution and program-to-program. DiRamio and Wolverton surveyed attendees at a learning communities conference about their opinions regarding the applicability of learning community principles to Internet learning and assessment. From their findings, a rudimentary diagnostic tool was developed to ascertain whether online course design takes learning community principles into account.

Moreover, in a case study of a five-week graduate level education course taught at a distance with Blackboard, Rovai (2006) documents that the 20 adult learners who were subjects of the study took advantage of the ‘learn anytime’ characteristic of the Internet.
The ‘learn anytime characteristic describes the students accessing the course seven days per week 24 hours per day. The course in the study explored various tools that are available for educators for creating a virtual classroom, which included graded course components of five weekly quizzes (20%), written discussion using the course discussion boards (20%), two exercises (15%), and two projects (45%). The data used for the study was from the sense from classroom community index (SCCI) (Rovai and Lucking, 2000), messages posted on the discussion board in Blackboard, and statistical data collected and tallied by the Blackboard e-learning system (Ravai, 2006).

Results of the study do not determine a significant relationship between the number of courses accessed and classroom community, but there is a clear indication that online instructors who value community must use interactive teaching methods that foster community. Since only one type of computer-mediated instruction was observed, the ability to generalize the findings beyond the study is limited (Ravai, 2006).

**Student Attrition**

There is a need for institutions to predict the dropout rate of students with a degree of certainty because various forms of institutional funding are based upon the attendance level of students (Parker, 1999). In a study at Mariccppa Community College District in Phoenix, Arizona, Parker studied multiple variables as predictors of dropout, which included: locus of control, gender, number of distance education courses completed, age, financial assistance and number of hours employed. Independent variable data was collected using a Student Information Sheet and Rotter’s Locus of Scale (Rotter, 1996).
In the study, Parker (1999) collected a sample of 100 distance education students registered in one of three classes. The distance education sample consisted of 21 students in Sociology 101d, delivered by audiocassette, 41 students in English 101d, delivered by computer conference, and 32 students in English 102d, delivered by correspondence. While each of the sampled courses was delivered in the traditional format, only the distance education format was used in the study. The distance education course used the same syllabus as the traditional education course. Students were allowed to complete work at their own pace, and all assignments were submitted electronically throughout the semester. In computer conferencing, students received instructions and sent assignments using electronic mail. The entire body of students participating in the study had a choice of taking the traditional course, comparable to the distance courses used in the study. Traditional courses during the study had a dropout rate of 3 percent, but distance education sections exceeded 17 percent (Parker, 1999).

Parker used the data collected on the student information sheets and the Locus of Control Scale to conduct a correlation analysis, which determined that locus of control and financial assistance were significantly (p > .05) correlated with the dependent variable of status of completion (Parker, 1999). Stepwise regression analysis was used to determine that the only variable that was significantly correlated with attrition was locus of control (r = .5907). The study determined that locus of control and source of financial assistance could predict 85% of dropout rate from distance education, while locus of control as a single, independent variable was able to predict dropout with an accuracy of 80% using discriminate analysis.
Locus of control. Parker (2003) conducted a study to test the theory that the locus of control or a student’s level of self-motivation is correlated with completion rates. A semester of locus of control changes for students who completed an online course was also explored in this research study. Locus of control was measured using the Rotter Locus of Control scale, which measures internal versus external control of reinforcement. Many researchers view locus of control as an indicator of persistence in web-based instruction more than financial aid (Parker, 1999) and experience levels of instructors (Carr, 2000).

Many believe that distance education and traditional education students drop out of courses for the same reason, but the only difference is that distance education students are older and they drop out more frequently. Others believe that fundamental differences in the two modes of instruction are the reason more people drop our of distance education courses. Some believe that the sophistication in technology will increase the retention in distance education courses. Likewise, Carr (2000) explains that Michele Payne, the director of learning initiatives at Kirkwood Community College, in Cedar Rapids, Iowa, confirms that completion rates are considerably higher in Internet courses rather than older, television-based courses. There are three factors to consider when discussing the locus of control in distance education courses in comparison to traditional education courses, which are demographic, learning style, and performance differences.

Demographic Differences. Research reveals that distance education or online students are older and have completed more degree programs, and have a higher prior GPA than traditional education students (Diaz, 200a; Gibson & Graff, 1992; Thompson, 1998). Carr (2000) suggests that anecdotal evidence and studies by individual institutions
suggest that course-completion and program-retention rates are generally lower in distance-education courses than in their face-to-face counterparts, which is attributed to course demographics such as age. Many believe that the distance education students are older and busier than students taking face-to-face courses. Carr (2000) documents, Pamela Quinn, the assistant chancellor at the Dallas County Community College District's R. Jan LeCroy Center for Educational Telecommunications, says studies at the LeCroy center have shown an 11 to 15 percentage-point difference between course-completion rates in the district's on-campus courses and those in its distance-education courses. She says that statistic has stayed fairly consistent throughout the 18 years that the district schools have offered distance courses. More than 10,000 students take courses each year through the LeCroy center, which is the distance-education arm of the seven institutions in the community-college district, and has offered a growing number of online courses for the past few semesters.

It has been determined that there is a correlation between age and success of distance education students (Diaz, 2002).

**Learning Style Differences.** Instructors should consider altering instructional design methods to accommodate the differing learning styles of traditional and distance education learning styles as a means of preventing drops (Diaz, 2002). Diaz used a test of learning styles to determine the correlation between students who scored as independent, self-directed individuals and completion of online instruction reporting a statistically significant correlation between self-motivation and academic persistence.

**Performance Differences.** Dias (2002) documents that online students often outperform traditional students when measuring the percentage of students who receive a grade of "C" or above, overall classroom performance (e.g., exam scores), or student satisfaction. Dias (2002) recommends that institutions and instructors focus on a student’s readiness for a distance class before taking the course to help with their analyzing reasons
for online success, the lack thereof or drop rates. Furthermore, Dias postures that more information is required concerning students drop courses, and until the reasons are determined educators and researchers should not assume that drops are synonymous with academic non-success, nor should they discredit online education as a viable alternative instructional delivery to traditional education. The influx of adults taking distance education courses has occurred because of the technological demands of society and the complexity of modern life (Parker, 2003).

Jaggers and Xu (2010) compared student course performance between traditionally delivered courses and online courses to course completion in their 2004-2008 study of courses delivered in the Virginia College System. Course completion was defined by the researchers as students earning a D or better in the course instead of withdrawing or failing the course. The researchers ran several inferential analyses to determine the statistically significant difference in course completion rates of both modes of delivery to determine that online students were less likely to complete the course. Even though online students were less likely to complete the course, the researchers determined that students who took online courses in the fall would persist into the spring just as their on-ground or face-to-face counterparts. Also, those who took online courses in the spring were as likely to persist to the fall as those who did not enroll in online courses.

The researchers offer two explanations for the persistence of these students in spite of high withdrawal and failure rate, which are the students rather than dropping out of school could have opted to take on-ground coursework instead of online courses and
students who took online courses had characteristics associated with short and long-term outcomes that were better.

Chapter Summary

Broadened educational access and increased higher educational opportunities in the New Economy is due largely in part to distance education (Johnsrud, et al. 2005), which is indicative of an increase in enrollment of students in online courses, not only creating more of a demand for courses, but also a demand to evaluate the effectiveness of course delivery modes in terms of how distance education courses compare to their traditional counterparts. Of course, two of the most important stakeholders when evaluating course delivery modes are instructors and students. Important effectiveness components concerning instructors are instructional design, instructor attitudes, and compensation and time teaching. On the other hand, performance, which includes testing and grades, demographics, perception and satisfaction, collaboration and community, and attrition are essential considerations when evaluating student effectiveness.

Based upon the literature, instructors become the instructional designers of the distance education course, assuming another role without more resources (NEA, 2000). Some instructors are more willing to design a course rather than teach a course because designing a course can generate extra capital, while course delivery of an online course may take more time but fail to generate more capital due to the fact that delivering the distance education course is a part of normal duties (Schifter, 2004).

Moreover, instructor attitudes are important to course delivery because of the instructor’s interaction with student. Perception is reality, especially in the learning environment, and if instructors have a negative attitude about the mode of delivery, then
students will perceive or discern this. Administration can mitigate negative instructor attitude with proper training (Dobbs, 2005). Support at the departmental level is needed because instructors perceive that upper administration value distance education more than at the department level, whereby they receive the most day-to-day support (Wilson, 2001). But, overall, instructors are favorable of distance education delivery if they believe that students can benefit. Moreover, instructors are more likely to use distance education if they believe that the effectiveness is comparable to face-to-face delivered courses (Johnsrud and Harada, 2005), which supports the need for distance education effectiveness studies leading to research into practice.

In addition to instructors, the literature reports that meeting the instructional needs of students is the most important task of any effective mode of delivery (Willis, 1993), just as faculty participation is singly the most critical resource in providing quality instruction (Johnsrud and Harada, 2005). Comparisons have been made in the research comparing course delivery modes using factors that might affect student performance, which resulted in on-ground students out-performing online students and online students out-performing blending learning students (Ashby et al, 2011). But, when non-completers were removed from the research study, on-ground students performed worse than online students, which lead to the importance of student attrition relating to mode of delivery.

Furthermore, attrition is important now more than ever because there is a need for institutions to predict the dropout rate of students with a degree of certainty because various forms of institutional funding are based upon the attendance level of students (Parker, 1999).
Unfortunately, distance education students have a higher dropout rate, in which some researchers posit to the fact that distance education students are older and have more reasons to dropout (Carr, 2000). On the other hand, there is research that explains that older students perform better in distance education courses (Howsen and Lile 2008) simply because they have more human capital or have been around longer and have more invested in their life and future.

Age is not the only important demographic data when comparing modes of course delivery. Race and gender are also important when considering online courses. Online course are more popular with women, and women tend to have a more positive experience. The research also indicates that minorities are less likely than White students to enroll in an online class.

In summary, to further explore and hopefully add to the current research, this research study was designed with the knowledge that both instructors and students are important to understanding course delivery alternatives in terms of effectiveness. Although faculty did not directly participate in this study, the student’s perception of their instructor was explored according to the survey instrument used in this study, and through data analysis, can offer insight in the areas of instructional design, instructor attitude, support and expertise, which is directly related to pedagogy. Student participant data in this study is analyzed using attrition and final grade data, according to the current research to possibly confirm trends within the community college setting and suggest future research according to the results.
CHAPTER THREE: RESEARCH METHODOLOGY

The purpose of this chapter is to provide an overview of the methodological framework of this study, as well as to articulate research design, methods and data sources to evaluate alternative modes of course delivery. Methods for establishing the trustworthiness and inquiry of the research are also discussed.

Research Questions

Presented below are the research questions that will be investigated in this study:

1. Do distance education courses differ from traditional education courses in terms of attrition overall, between courses, and within courses, to include: Financial Accounting I, Financial Accounting II, English Composition I, and Introduction to Computer Technology?
   a. Do distance education courses differ from traditional education courses in terms of attrition for male compared to female students?
   b. Do distance education courses differ from traditional education course in terms of attrition for ethnicity or majority compared to minority students?
   c. Do distance education courses differ from traditional education courses in terms of attrition for age or traditional compared to non-traditional students?

2. Do distance education courses differ from traditional education courses in terms of final grades overall, between courses, and within courses, to include: Financial Accounting I, Financial Accounting II, English Composition I, and Introduction to Computer Technology?
a. Do distance education courses differ from traditional education courses in terms of final grades for male compared to female students?

b. Do distance education courses differ from traditional education course in terms of final grades for ethnicity or majority compared to minority students?

c. Do distance education courses differ from traditional education courses in terms of final grades for age or traditional compared to non-traditional students?

3. Do distance education courses differ from traditional education courses in terms of the student’s perception of the instructor based upon the following components:

   a. Instructional Design;
   
   b. Instructor Attitude;
   
   c. Instructor Support;
   
   d. Instructor Expertise; and,

**Research Design**

This research study is a quasi-experimental research design. Quasi-experimental design is a alternative research design to experimental design, which requires random assignment of participants to control groups; quasi-experimental research does not provide full control of potential confounding variables (Johnson and Christensen, 2008), which is particularly true in schools (Mertler and Charles, 2011). In addition, quasi-experimental research includes an independent variable and a dependent variable. Independent variables are treatment conditions, while dependent variables can be
measured in all groups. Mertler and Charles (2011) describe the characteristics of quasi-experimental research design as:

- A cause effect relationship is hypothesized, which stipulates that trait or condition $X$ will produce, bring about, or cause trait or condition $Y$.
- Participants are not randomly assigned into groups
- The experimental treatment is applied, which is an introduction of a new independent variable or modification of an existing one.
- After the experimental treatment has been completed, all participants are measured to determine the effects, if any of the treatment.
- Data is usually obtained in the form of scores. Data analysis includes testing for significance of difference observed in the dependent variable. If a significant difference is observed, and if errors can be accounted for, the treatment can be said to have caused the observed difference (p 293).

Since the purpose of the study was to evaluate whether on-ground courses differ from online courses in terms of the effectiveness components of attrition, final grades, and student perceptions of their instructor, the researcher was interested in examining data from students enrolled in on-ground and online courses. Furthermore, to control for instructor, the researcher wanted to evaluate data from on-ground and online courses that were taught by the same instructor in both modes. Therefore, neither student participants nor instructor participants were randomly selected or assigned into groups. First of all, instructors ($N = 4$) were selected according to whether they delivered the same course in the distance education mode of delivery (online) and in the traditional mode of delivery (on-ground). Online courses were defined as those that had no face-to-face contact but
were delivered with the Blackboard Course Management System (CMS). On-ground courses were defined as those that met on campus; either two or three times a week and no online required coursework. Next, students (N = 771) who were enrolled in the courses were selected according to the fours courses that were delivered by the instructors.

The cause-effect relationship of this study is course mode delivery on student attrition, student final grades, and student perceptions of instructional design, instructor attitude, instructor support and instructor expertise. This study also sought to explore the cause-effect relationship of course mode delivery along with gender, race and age on student attrition and student final grades.

Variables are characteristics or attributes of an individual or an organization that researchers can measure or observe (Creswell, 2008). As indicated in Table 3.1, there both were independent variables and dependent variables as a part of the research design. Variables were either measured as categories or as continuous scores. ‘COURSEDELIVERY’ is a continuous independent variable, with two levels, online and on-ground. ‘COURSE’ is an independent variable with eight levels, for each of the courses that were a part of Table 3.1

Table 3.1. Quasi-Experimental Research Design Comparing Modes of Delivery Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>Type</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>COURSEDELIVERY</td>
<td>Online</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>On-ground</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td>COURSE</td>
<td>Financial Accounting I Online</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Financial Accounting I On-ground</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Financial Accounting II Online</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Financial Accounting II On-ground</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Intro to Computer Science Online</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Intro to Computer Science On-ground</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
</tbody>
</table>
Table 3.1. (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mode</th>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition I Online</td>
<td></td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td>English Composition I On-ground</td>
<td></td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td>COURSEMODE</td>
<td>(COURSEDELIVERY+COURSE)*</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td>AGE</td>
<td>Traditional Student</td>
<td>Independent (IV)</td>
<td>Continuous</td>
</tr>
<tr>
<td></td>
<td>Non-traditional Student</td>
<td>Independent (IV)</td>
<td>Continuous</td>
</tr>
<tr>
<td>AGEMODE</td>
<td>Traditional Student Online</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Non-traditional Student Online</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Traditional Student On-ground</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Non-traditional Student On-ground</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td>GENDER</td>
<td>Male Student</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Female Student</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td>GENDERMODE</td>
<td>Female Student Online</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Male Student Online</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Female Student On-ground</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Male Student On-ground</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td>RACE</td>
<td>Majority Student</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Minority Student</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td>RACEMODE</td>
<td>Majority Student</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td></td>
<td>Minority Student</td>
<td>Independent (IV)</td>
<td>Categorical</td>
</tr>
<tr>
<td>ATTRITION**</td>
<td>**</td>
<td>Dependent (DV)</td>
<td>Continuous</td>
</tr>
<tr>
<td>FINALGRADE</td>
<td>**</td>
<td>Dependent (DV)</td>
<td>Continuous</td>
</tr>
<tr>
<td>FINALGRADE2</td>
<td>**</td>
<td>Dependent (DV)</td>
<td>Continuous</td>
</tr>
<tr>
<td>INSTRDES</td>
<td>N/A</td>
<td>Dependent (DV)</td>
<td>Continuous</td>
</tr>
<tr>
<td>INSTRATT</td>
<td>N/A</td>
<td>Dependent (DV)</td>
<td>Continuous</td>
</tr>
<tr>
<td>INSTRSUPP</td>
<td>N/A</td>
<td>Dependent (DV)</td>
<td>Continuous</td>
</tr>
<tr>
<td>INSTREXP</td>
<td>N/A</td>
<td>Dependent (DV)</td>
<td>Continuous</td>
</tr>
<tr>
<td>STUDINTR</td>
<td>N/A</td>
<td>Dependent (DV)</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

Note. (*) Indicates that the variable contains 16 levels and a detailed description is located in the Data Analysis section. (**) Indicates that a detailed description is located in the Data Analysis section.

This study according to whether they were delivered online or on-ground. ‘AGE’ is a continuous independent variable, measuring the years of the student participants. ‘GENDER’ and ‘RACE’ are categorical independent variables. ‘ATTRITION’ and ‘FINALGRADE’ are continuous dependent variables. Student perception based upon instructional design or ‘INSTRDES’, instructor attitude or ‘INSTRATT’, instructor support or ‘INSTRSUPP’, and instructor expertise or ‘INSTREXP’ are continuous scaled dependent variables. Student interest or ‘STUDINTR’ is a continuous dependent variable. ‘COURSEMODE,’ ‘AGEMODE’, ‘GENDERMODE’, and ‘RACEMODE’ were
transformed independent variables and a more detailed account of the transformation is in the Data Analysis section of this chapter.

**Setting**

The setting for this study was Baton Rouge Community College (BRCC), which is located in the City of Baton Rouge and Parish of East Baton Rouge. The Louisiana Board of Regents (2011) documents that Baton Rouge Community College had a total of 8,047 students enrolled during the spring semester of 2010 and 8,332 during the fall, which are the semesters used for this study. Baton Rouge Community College has over 200 faculty and staff, including full-time and part-time.

**Data Sources**

Data sources for this study involve using electronic sources and archival data. Electronic sources include the Baton Rouge Community College, Louisiana Community and Technical College System and the Louisiana Board of Regents websites, databases, Internet search engines, and manual Web searches. The Master Course Syllabi for the courses in this study were retrieved from the Baton Rouge Community College website through a manual search made by the researcher. The Baton Rouge Community College Department of Institutional Research provided all archival data. Data sources according to the research questions for this study are described in this section according to attrition data source, final grade data source, and student perception data source.

**Master Course Syllabus.** Baton Rouge Community College has a master syllabus for each course, which details objectives and subject matter for each subject area, regardless of the method/mode of delivery, in which the Academic Affairs department approves and revises periodically, as documented on Table 3.2. Furthermore,
students are encouraged via the college website to review the master syllabus to obtain detailed information concerning courses. All courses in this study utilized the master syllabus as the basis of course design and development. This study includes data from five courses: Financial Accounting I (ACCT 200), Financial Accounting II (ACCT 201), Introduction to Computer Science (CSCI 101), and English Composition (ENGL 101) during fall and spring 2010, whereby students received 3.0 credits for successfully completing the course, regardless to the method of delivery. The master course syllabus for each course is included in Appendix B.

**ACCT 200.** Financial Accounting I introduces basic accounting concepts and principles, accounting cycle, preparation of financial statements, general and special journals, and payroll accounting. Prerequisite for the course is the eligibility for college math, which is determined by the student’s ACT or COMPASS placement scores.

**ACCT 201.** Financial Accounting II is the second level of financial accounting and focuses on balance sheet valuation, business partnerships, corporations, stockholder’s equity, the statement of cash flows, and financial statement analysis. Financial Accounting I is the prerequisite for this course.

**CSCI 101.** Introduction to Computer Science reviews computers and their applications in society (home, education, and industry). The course also introduces application software and its uses including, but not limited to, its uses in word processing, spreadsheets, databases, and multimedia. There are no prerequisites for this course.

**ENGL 101.** English Composition I introduces expressive and informative forms of writing discourse, emphasizing writing as learning and thinking process. The course also emphasizes strategies for the stages of prewriting, writing, and revising papers.
Students enrolled in this course are required to pass a departmental exit exam to pass the course. Prerequisites for this course include the appropriate COMPASS placement test score or ENGL 091, Foundations of English 091.

Table 3.2. BRCC Academic Affairs Master Course Approval or Revision Date

<table>
<thead>
<tr>
<th>Course</th>
<th>Date Approved or Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Accounting I (ACCT 200)</td>
<td>July 16, 2005</td>
</tr>
<tr>
<td>Financial Accounting II (ACCT 201)</td>
<td>July 16, 2005</td>
</tr>
<tr>
<td>Intro to Computer Technology (CSCI 101)</td>
<td>July 23, 2008</td>
</tr>
<tr>
<td>English Composition I (ENGL 101)</td>
<td>August 8, 2008</td>
</tr>
</tbody>
</table>

Attrition Data Source. The data source for attrition was archival data for the spring and fall semester of 2010 in the form of an Excel spreadsheet. The Excel spreadsheet contained student demographic and final grade data, according to the course of which course the student was enrolled. Student final grades were used to calculate student attrition as indicated in the Data Analysis section.

Final Grade Data Source. The final grade data source was archival data from the spring and fall semesters of 2010 in the form of an Excel spreadsheet. The Excel spreadsheet contained student demographic data and final grades according to the course of which the student was enrolled.

Student Perception Data Source

Student Rating of Faculty survey responses were delivered to the researcher as archival data. The Baton Rouge Community College instrument, Student Rating of Faculty, is delivered to all students enrolled in a course through the same delivery method, regardless to whether they are enrolled in an online course or an onground course. The delivery method is electronically via their student email account, which is delivered before the end of the semester to evaluate the faculty in the course of which
they are currently enrolled. Student responses to the evaluation were anonymous to the researcher.

The *Student Rating of Faculty Survey* has both an online and an on-ground version, varying slightly in terms of a few questions. Both surveys ask the same five questions that range from whether the student plans on completing their coursework at BRCC to evaluating course workload and their experience “in connection with the course.” The on-ground version of the survey differs from the online version of the survey because it includes the question asking the student if the instructor provided them with a “copy of or access to course syllabus within the first week of class?” This question was omitted from this study because it could not be measured in both delivery modes. Another question that was included in the on-ground version of the survey but not included in the online version asked the student whether the instructor “provides helpful comments or feedback on work.” This question too was omitted from this study because it could not be compared in both modes of course delivery. Both versions online and on-ground used the same likert scale, from “5-very effectively” to “1-very ineffectively.” In total, the survey consists of 21 questions that are the same in both the online and on-ground version that asks the student to specifically rate their instructor, which were evaluated in this research study. The survey also allows students to give comments concerning their instructor or the course. These comments were used in this research study to support the statistical findings. Appendix C includes a copy of the on-ground version of the survey and Appendix D includes a copy of the online version of the survey. The copy of the survey instrument in Appendix D is not accurate and is included only as a point of reference for the type of questions. While the actual instrument that was used for this study has the
same questions as the one in Appendix D, it uses the same likert scale as the on-ground version in Appendix C, as verified by the Baton Rouge Community College Institutional Research Department.

As listed in Table 3.3, the researcher and one of the original dissertation committee members, Dr. Yiping Lou, divided the survey into four distinct components or scales, using 18 of the 21 questions that were the same in both versions of survey, which are, instructional design, instructor attitude, instructor support, instructor expertise, and instructor engagement.

Table 3.3. Student Rating of Faculty Scale Variables

<table>
<thead>
<tr>
<th>Scale Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor Course Design</td>
</tr>
<tr>
<td>Instructor Support</td>
</tr>
<tr>
<td>Instructor Attitude</td>
</tr>
<tr>
<td>Instructor Expertise</td>
</tr>
</tbody>
</table>

**Reliability.** The scales were evaluated using Table coefficient alpha or Cronbach’s coefficient alpha to analyze the reliability of the scale variables. The scales include instructor course design, instructor attitude, instructor support, and instructor expertise, and their reliability or Cronbach’s alpha level is listed in Table 3.4.

Table 3.4. Student Rating of Faculty Survey Scale Variable Coefficient Alphas

<table>
<thead>
<tr>
<th>Scale</th>
<th>Coefficient Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor Course Design</td>
<td>0.94</td>
</tr>
<tr>
<td>Instructor Attitude</td>
<td>0.91</td>
</tr>
<tr>
<td>Instructor Support</td>
<td>0.95</td>
</tr>
<tr>
<td>Instructor Expertise</td>
<td>0.94</td>
</tr>
</tbody>
</table>

**Instructional Design.** As listed in Table 3.5, four items from the *Student Rating of Faculty* survey were used to assess the extent to which students rated the instructor’s design of the course, specifically including items such as, the instructor “uses a grading
policy that is clearly stated” or “connects assignments with learning outcomes.” The reliability estimate for this scale is \( \alpha = .94 \).

Table 3.5. Student Rating of Faculty Survey Instructional Design Scale Items

<table>
<thead>
<tr>
<th>Instructional Design Scale Items</th>
<th>( \alpha )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor connects assignments with learning outcomes</td>
<td>0.94</td>
</tr>
<tr>
<td>Instructor uses a grading policy that is clearly stated</td>
<td></td>
</tr>
<tr>
<td>Instructor relates test questions to materials covered or assigned</td>
<td></td>
</tr>
<tr>
<td>Instructor summarizes major points at the end of the lesson</td>
<td></td>
</tr>
</tbody>
</table>

**Instructor Attitude.** As listed in Table 3.6, four items from the *Student Rating of Faculty Survey* to were used to assess the extent to which students rated the instructor’s attitude while taking the course, specifically including items, such as the instructor, “displays enthusiasm about the subject matter” and “treats students with respect.” The reliability estimate for this scale is \( \alpha = .91 \).

Table 3.6. Student Rating of Faculty Instructor Attitude Scale Items

<table>
<thead>
<tr>
<th>Instructor Attitude Scale Items</th>
<th>( \alpha )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor explains subject matter clearly</td>
<td>0.91</td>
</tr>
<tr>
<td>Instructor answers questions clearly</td>
<td></td>
</tr>
<tr>
<td>Instructor displays enthusiasm about subject matter</td>
<td></td>
</tr>
<tr>
<td>Instructor treats students with respect</td>
<td></td>
</tr>
</tbody>
</table>

**Instructor Support.** As listed in Table 3.7, five items from the *Student Rating of Faculty Survey* were used to assess the extent to which students rated the support level of the instructor while taking the course, specifically including items such as, the instructor “is available to help,” “encourages me to participate in class,” and “demonstrates interest in my success. The reliability estimate for this scale is \( \alpha = .95 \).

**Instructor Expertise.** As listed in Table 3.8, five items from the *Student Rating of Faculty Survey* were used to assess the extent to which students rated the instructor’s perceived knowledge or expertise in the subject area while taking the course, specifically
Table 3.7. Student Rating of Faculty Instructor Support Scale Items

<table>
<thead>
<tr>
<th>Instructor Expertise Scale Items</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor is available for help</td>
<td>0.94</td>
</tr>
<tr>
<td>Instructor provides helpful and relevant lessons</td>
<td></td>
</tr>
<tr>
<td>Instructor encourages me to participate in class</td>
<td></td>
</tr>
<tr>
<td>Instructor seeks feedback from students on whether they understand material</td>
<td></td>
</tr>
<tr>
<td>Instructor demonstrates interest in my success</td>
<td></td>
</tr>
</tbody>
</table>

including items such as, the instructor “demonstrates knowledge of the subject matter, “relates course material to real life situations when appropriate,” and “uses examples to clarify subject matter.” The reliability estimate for this scale is \( \alpha = .94 \).

Table 3.8. Student Rating of Faculty Instructor Expertise Scale Items

<table>
<thead>
<tr>
<th>Instructor Expertise Scale Items</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor relates course material to real life situations when appropriate</td>
<td>0.94</td>
</tr>
<tr>
<td>Instructor demonstrates knowledge of subject matter</td>
<td></td>
</tr>
<tr>
<td>Instructor connects present topics to previous topics</td>
<td></td>
</tr>
<tr>
<td>Instructor refers to the texts or reading in the course</td>
<td></td>
</tr>
<tr>
<td>Instructor uses examples to clarify subject matter</td>
<td></td>
</tr>
</tbody>
</table>

**Participants**

There were both student participants and faculty participants as a part of this research study. While the number of student participants varied according to the research question, the number of faculty remained the same, which were four faculty members. There were a total of 771 students who were participants in this study for the attrition and final grade research questions, and there were 177 student participants for the student perception research question.

Faculty participants were selected according to whether they delivered in the same section of a course in the on-ground and online version during the spring and fall semesters at Baton Rouge Community College. Four faculty participants were selected, Instructor 1 taught the same section of Financial Accounting I (ACCT 200) on-ground
and online. Instructor 2 taught the same section of Financial Accounting II (ACCT 201) on-ground and online. Instructor 3 taught the same section of Introduction to Computer Science (CSCI 101) on-ground and online, and Instructor 4 taught the same section of English Composition I (101) on-ground and online. Faculty were non-active participants; therefore, no consent forms were required. There was no faculty demographic data provided for this research.

Likewise, students were non-active participants and no consent forms were required. Students were selected according to whether they were enrolled in either the online or on-ground mode of delivery taught by either of the four instructors, as previously listed.

Specifically, students who participated in this study are classified by Baton Rouge Community College (2012) as 530 (69%) continuing students, 106 (14%) first time students, 72 (9%) transfer students, 52 (7%) re-admitted students, and 11(1%) who were either early admission, summer-only transient, continuing education, or Southern University cross enrolled student, as detailed in Table 3.9.

Table 3.9. Student Type Description

<table>
<thead>
<tr>
<th>Student Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-time Freshman/Student</td>
<td>A first time Freshman/student is a person that has never attended any college or university. To enter the college, the student must submit acceptable ACT/SAT scores or complete COMPASS Placement. A required ACT sub score of Math (19) and English (18) are acceptable for Math and English placement. A required SAT score Math 460 and English 350.</td>
</tr>
<tr>
<td>Transfer Student</td>
<td>A transfer student is any student who has been previously enrolled at another college or university, and transfer students may only enroll at BRCC if they are eligible for readmission at the last school they attended. To become admitted into the college, transferring students must take the COMPASS Placement Test or provide transcripts indicating that college level Algebra and/or English have been completed with a letter grade of “C” or better.</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Re-admit Student</strong></td>
<td>Students who have previously attended Baton Rouge Community College but have not been enrolled for a full calendar year are deemed Readmit Students, and readmit students must comply with applicable admission standards.</td>
</tr>
<tr>
<td><strong>Transient Student</strong></td>
<td>Transient students have only attended Baton Rouge Community College for a summer session. Students who are in good standing and are currently enrolled at another institution who plan to attend BRCC for the summer session must comply with applicable admission standards. Those transient students who decide to continue past the one semester for which they were admitted will be required to apply for regular admission, submit all required official transcripts, and meet transfer admission requirements.</td>
</tr>
<tr>
<td><strong>Continuing Education (Non-degree seeking) Student</strong></td>
<td>Continuing education students are non-degree seeking students taking courses for professional or personal enrichment, who do not seek to earn a degree or certificate. These students are required to complete the on-line Application for Admission, pay the application fee, and submit the signature page of the application. While non-degree seeking students are not usually subject to admissions standards, they must follow the prerequisites required for their curricula. Those students who move from non-degree seeking to degree seeking are required to submit necessary documentation, complete assessments, and meet admission requirements.</td>
</tr>
<tr>
<td><strong>Early Admissions Student</strong></td>
<td>Early admission students are those who are able to take classes at Baton Rogue Community College while still in high school as part of our Early Admissions Program. With Early Admissions, a student can be admitted while simultaneously continuing with their high school education. This program is open to all high school juniors and seniors 16 years of age or older who have maintained a 3.00 grade point average.</td>
</tr>
<tr>
<td><strong>Dual Enrollment/Early Start Program Student</strong></td>
<td>This program allows eligible high school juniors and seniors, currently attending public schools in East Baton Rouge Parish, West Baton Rouge Parish, Ascension Parish, West Feliciana Parish, Zachary Community School District and Central Community School District to concurrently enroll in a college course taught by a Baton Rouge Community College (BRCC) instructor. The credits that students earn will be used toward a high school diploma and are acceptable toward a college degree, and/or certificates.</td>
</tr>
<tr>
<td><strong>Cross-Enrollment Student</strong></td>
<td>Baton Rouge Community College currently has cross-enrollment agreements with Louisiana State University, Southeastern Louisiana University, and Southern University. These agreements permit BRCC students to register for pre-approved courses at one of these institutions while concurrently enrolled at BRCC.</td>
</tr>
</tbody>
</table>
Attrition and Final Grade Participants

For the attrition and final grade research questions, this study explores, gender, race and age. Because of missing values, only 769 student participants were analyzed according to their gender data and 751 student participants were analyzed according to their race data of the 771 total student participants. All 771 student participants were analyzed according to age data.

Attrition and Final Grade Participants Within Courses. Attrition and final grades are evaluated within courses for gender, race and age. In Financial Accounting I, had 172 participants for gender, 168 participants for race, and 172 participants for age. Financial Accounting II had 145 participants for gender, 144 participants for race, and 145 for age. English Composition I had 206 participants for gender, 203 for race, and 203 for age. Introduction to Computer Science had 247 participants for gender, 242 participants for race, and 250 participants for age

Student Perception Participants

Furthermore, for the perception research question, there were 177 student participants. While all 771 student participants received the survey, their response was optional therefore contributing to the 23 percent response rate.

Procedures

The procedures are described as the sequence of this study, in which were performed in several stages because there are three main research questions being explored. Table 3.10 details these phases or procedures, which includes attrition, final grades, and student perception. First of all, the researcher met with BRCC administration to determine the availability of the archival data. At which time, a copy of the Student
Rating of Faculty survey was provided in both on-ground and online versions. Dr. Yiping Lou, former committee member and researcher reviewed the survey and placed the questions in categories to later create scales.

The effectiveness data was later received from the BRCC Department of Institutional Research in the form of archival data, protecting the identity of the student and instructor. Specifically, data including the student demographics, and final grades were provided to the researcher initially in the form of an Excel spreadsheet. The Student Rating of Faculty survey responses were later provided to the researcher in the form of text files. The researcher transferred the survey data from the text files into an Excel spreadsheet so that the data could be easily read in the statistical program. Effectiveness data was then matched to student via pseudo identification numbers, ensuring that all variables correspond to the correct student when entered into the SPSS or analyzing program. The scales were analyzed to check for reliability. Then, the researcher analyzed the data according to the research questions to report findings and conclusion.

Table 3.10. Research Procedures for Attrition, Final Grades, and Student Perception

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine archival data availability</td>
<td>The researcher initially met with the administrators of BRCC to confirm the availability of the data for the research. Researcher was provided a copy of the Student Rating of Survey instrument in both the on-ground and online versions.</td>
</tr>
<tr>
<td>Evaluate Instrument to Create Scales</td>
<td>Former committee member, Yiping Lou and researcher evaluated the Student Rating of Survey Instrument, placing the questions in categories to ultimately create scales.</td>
</tr>
<tr>
<td>Collect Archival Data and Document Analysis</td>
<td>The Director of Institutional Research and Advancement at BRCC provided archival data, which included effectiveness components of research. Documents were retrieved from BRCC website and analyzed.</td>
</tr>
<tr>
<td>Transfer Archival Data, Attrition and Final Grades</td>
<td>The researcher transferred the Excel spreadsheet files that contained the attrition and final grade data into the statistical program.</td>
</tr>
</tbody>
</table>
### Table 3.10. (continued)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer Archival Data, Student Perception</td>
<td>The researcher transferred the student perception responses into an Excel spreadsheet; then, the corresponding on-ground and online questions were matched to create single items to be analyzed. Once the new items were created, the student perception data was transferred to the statistical program.</td>
</tr>
<tr>
<td>Create Scales and Check Reliability</td>
<td>Scales were created in the statistical program, and checked with Cronbach’s Alpha for reliability.</td>
</tr>
<tr>
<td>Determine the Effectiveness of Attrition, Final Grades and Student Perception</td>
<td>Through statistical analysis, effectiveness components were analyzed with frequency, reliability analysis, descriptive statistics, t-Tests, Independent Samples Test of Proportion, and ANOVA.</td>
</tr>
<tr>
<td>Establish the Effectiveness of Attrition, Final Grades and Student Perception</td>
<td>The effectiveness data from both methods of instruction and both semesters were used to report findings and formulate a conclusion.</td>
</tr>
</tbody>
</table>

### Data Analysis

This section details the data analysis for this study that was performed in several stages. First of all the data was entered into the Statistical Package for the Social Sciences (SPSS), and frequency was performed to determine whether any data was entered incorrectly, indicative of cases that were out-of-the range for a particular variable. Once all data were determined to be entered correctly, the next phases of analysis followed, according to the research questions, which included data analysis for attrition, final grades, and student perceptions according to the survey instrument the Student Rating of Faculty.

**Attrition Overall**

Independent variable, “CAMPUSCODE,” which had two levels, online and on-ground and dependent variable, “ATTRITION” were used to analyze whether distance education courses differ from traditional education courses, according the amount of students who did not successfully complete the course by withdrawing from the course, making a zero as their final grade or making an “F” as their final grade. The dependent
variable “FINALGRADE” was transformed into the new variable, “ATTRITION”. The variable, “FINALGRADE” consisted of seven levels, four of which were “A, B, C, and D,” equivalent to the 4.0 grading scale. The other three levels consisted of “F’s,” withdrawals and zeros. The new variable, “ATTRITION” consisted of two levels, successful and unsuccessful completion of the course. Successful completion of the course included students who made a “D” or better; unsuccessful completion of the course included students who either withdrew from the course, received a zero at the end of the course or made an “F” at the end of the course. An independent samples test of proportions and descriptive statistics was used to analyze the data.

**Attrition Between Courses.** The independent variable “COURSEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition, comparing individual courses according to delivery mode, online or onground, but variable transformation was required. The grouping variables “COURSEDELIVERY” and “CAMPUSCODE” were transformed to create a new variable “COURSEMODE.” “CAMPUSCODE” was a grouping variable with two levels that assigned all cases or students in the study to either an online mode of delivery or an on-ground mode of delivery. “COURSE” was a grouping variable with four levels that assigned all cases in the study to a course, which included Financial Accounting I (ACCT 200), Financial Accounting II (ACCT 201), Introduction to Computer Science (CSCI 101), and English Composition I (ENGL 101). The new grouping variable “COURSEMODE” consisted of eight levels, Financial Accounting I (ACCT 200)-On-ground, Financial Accounting I (ACCT 200)-Online, Financial Accounting II (ACCT 201)-On-ground, Financial Accounting II (ACCT 201)-Online, Introduction to Computer Science (CSCI 101)-On-ground, Introduction to Computer Science (CSCI 101)-Online, Financial Accounting I (ACCT 200)-On-ground, and Financial Accounting I (ACCT 200)-Online.
The rate of Attrition Overall was analyzed in SPSS, according to the 771 students participants using descriptive statistics.

**Attrition Gender.** The independent variable “GENDERMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for male versus female students, but a variable transformation was required. The grouping variables “COURSEDELIVERY” and “GENDER” were transformed to create a new variable “GENDERMODE.” The grouping variable “GENDERMODE” consisted of four levels, which were female online students, male online students, female on-ground students, and male on-ground students. Attrition rate of males versus females was analyzed in SPSS, according to the total students 769 students with gender data using descriptive statistics.

**Attrition Race.** The independent variable “RACEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for minority versus majority students, but several variable transformations were required. The grouping variables “COURSEDELIVERY” and “RACE” were transformed to create a new variable “RACEMODE.” “RACE” was a grouping variable with two levels that describes all students as majority, Caucasian or minority, non-Caucasian. “RACEMODE included four levels, majority online, minority online, majority on-ground and minority on-ground. The Attrition rate of majority versus minority students was analyzed in SPSS, according to the total students 767 students with race data using descriptive statistics.
**Attrition Age.** The independent variable “AGEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for traditional versus non-traditional students, but several variable transformations were required. The grouping variables “COURSEDELIVERY” and “AGEGRP” were transformed to create a new variable “AGEMODE.” “AGEGRP” was a grouping variable with two levels that assigned all cases or students in the study as traditional students or those aged 18-24 years old or non-traditional students those students 25 years and older. “AGEMODE” consisted of four levels, which were traditional students online, non-traditional students online, traditional students on-ground, and non-traditional students on-ground. Attrition of traditional versus non-traditional students was analyzed in SPSS, according to the 771 student participants using descriptive statistics.

**Attrition Within Courses.** Once the researcher determined that there was a significant difference in attrition in the on-ground compared to online courses overall, and between courses, additional analyses were performed to evaluate whether there were any significant differences within each course. The same instructor delivered both modes of delivery, on-ground and online in each subject area; thus, this analysis controlled for instructor. Attrition comparisons were made for each mode of delivery based upon gender, race and age in Financial Accounting I (ACCT 200), Financial Accounting II (ACCT 201), English Composition I (ENGL 101), and Introduction to Computer Science (CSCI 101).

**ACCT 200 Attrition Gender.** The independent variable “GENDERMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for male versus female students in Financial Accounting I by the researcher sorting the
previous data file by cases and creating a new file for Financial Accounting I data. The grouping variable “GENDERMODE” consisted of four levels, which were female online students, male online students, female on-ground students, and male on-ground students in Financial Accounting I. Attrition rate of males versus females was analyzed in SPSS, according to the total students 172 students with gender data using descriptive statistics.

**ACCT 200 Attrition Race.** The independent variable “RACEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for majority versus minority students in Financial Accounting I by the researcher sorting the previous data file by cases and creating a new file for just Financial Accounting I data. ‘RACEMODE’ included four levels, majority online, minority online, majority on-ground and minority on-ground in Financial Accounting I. The Attrition rate of majority versus minority students was analyzed in SPSS, according to the total students 168 students with race data using descriptive statistics.

**ACCT 200 Attrition Age.** The independent variable “AGEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for traditional versus non-traditional students in Financial Accounting I. “AGEMODE” consisted of four levels, which were traditional students online, non-traditional students online, traditional students on-ground, and non-traditional students on-ground in Financial Accounting I. Attrition of traditional versus non-traditional students was analyzed in SPSS, according to the 172 student participants using descriptive statistics.

**ACCT 201 Attrition Gender.** The independent variable “GENDERMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for male versus female students in Financial Accounting II by the researcher sorting the
previous data file by cases and creating a new file for Financial Accounting II data. The grouping variable “GENDERMODE” consisted of four levels, which were female online students, male online, female on-ground students, and male on-ground students in Financial Accounting II. Attrition rate of males versus females was analyzed in SPSS, according to the total students 145 students with gender data using descriptive statistics.

**ACCT 201 Attrition Race.** The independent variable “RACEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for majority versus minority students in Financial Accounting II by the researcher sorting the previous data file by cases and creating a new file for just Financial Accounting II data. ‘RACEMODE’ included four levels, majority online, minority online, majority on-ground and minority on-ground in Financial Accounting II. The Attrition rate of majority versus minority students was analyzed in SPSS, according to the total students 144 students with race data using descriptive statistics.

**ACCT 201 Attrition Age.** The independent variable “AGEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for traditional versus non-traditional students in Financial Accounting II. “AGEMODE” consisted of four levels, which were traditional students online, non-traditional students online, traditional students on-ground, and non-traditional students on-ground in Financial Accounting II. Attrition of traditional versus non-traditional students was analyzed in SPSS, according to the 145 student participants using descriptive statistics.

**ENGL 101 Attrition Gender.** The independent variable “GENDERMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for male versus female students in English Composition I by the researcher sorting the
previous data file by cases and creating a new file for English Composition I data. The grouping variable “GENDERMODE” consisted of four levels, which were female online students, male online, female on-ground students, and male on-ground students in English Composition I. Attrition rate of males versus females was analyzed in SPSS, according to the total students 206 students with gender data using descriptive statistics.

**ENGL 101 Attrition Race.** The independent variable “RACEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for majority versus minority students in English Composition I by the researcher sorting the previous data file by cases and creating a new file for just English Composition I data. ‘RACEMODE’ included four levels, majority online, minority online, majority on-ground and minority on-ground in English Composition I. The Attrition rate of majority versus minority students was analyzed in SPSS, according to the total students 203 students with race data using descriptive statistics.

**ENGL 101 Attrition Age.** The independent variable “AGEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for traditional versus non-traditional students in English Composition I. “AGEMODE” consisted of four levels, which were traditional students online, non-traditional students online, traditional students on-ground, and non-traditional students on-ground in English Composition I. Attrition of traditional versus non-traditional students was analyzed in SPSS, according to the 203 student participants using descriptive statistics.

**CSCI 101 Attrition Gender.** The independent variable “GENDERMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for male versus female students in Introduction to Computer Science by the researcher.
sorting the previous data file by cases and creating a new file for Introduction to Computer Science data. The grouping variable “GENDERMODE” consisted of four levels, which were female online students, male online, female on-ground students, and male on-ground students in Introduction to Computer Science. Attrition rate of males versus females was analyzed in SPSS, according to the total students 247 students with gender data using descriptive statistics.

CSCI 101 Attrition Race. The independent variable “RACEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for majority versus minority students in Introduction to Computer Science by the researcher sorting the previous data file by cases and creating a new file for just Introduction to Computer Science data. ‘RACEMODE’ included four levels, majority online, minority online, majority on-ground and minority on-ground in Introduction to Computer Science. The attrition rate of majority versus minority students was analyzed in SPSS, according to the total students 242 students with race data using descriptive statistics.

CSCI 101 Attrition Age. The independent variable “AGEMODE” and the dependent variable “ATTRITION” were used to analyze the rate of student attrition for traditional versus non-traditional students in Introduction to Computer Science. “AGEMODE” consisted of four levels, which were traditional students online, non-traditional students online, traditional students on-ground, and non-traditional students on-ground in Introduction to Computer Science. Attrition of traditional versus non-traditional students was analyzed in SPSS, according to the 250 student participants using descriptive statistics.
Final Grades Overall

Independent variable, “CAMPUSCODE,” which had two levels, online and on-ground and dependent variable, “FINALGRADE2” were used to analyze whether distance education courses differ from traditional education courses, according student final grades in the course. The variable, “FINALGRADE2” consisted of five levels, four of which were “A, B, C, and D, ” equivalent to the 4.0 grading scale. The fifth level consisted of “F’s,” withdrawals and zeros, which all had a value of zero on the 4.0 grading scale because any student receiving either of these classifications did not receive credit for the course. There were 771 student participants; descriptive statistics and a One-way ANOVA was performed with $\alpha = .05$ to analyze the data

Final Grades Between Courses. The independent variable “COURSEMODE” and the dependent variable “FINALGRADE2” were used to analyze whether distance education courses differ from traditional education courses, according students final grades in specific courses. Descriptive statistics and a One-way ANOVA was used to analyze the data with $\alpha = 0.05$, according to the total students or 771 student participants.

Final Grades Gender. The independent variable “GENDERMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of male students compared to female students depending on whether they were enrolled in an on-ground or online course. The variables were analyzed in SPSS, according to the total students 767 student participants using descriptive statistics and a one-way ANOVA with an $\alpha = 0.05$.

Final Grades Race. The independent variable “RACEMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of minority versus
majority students, according to whether they were enrolled in an on-ground or online course. The variables were analyzed in SPSS, according to 751 student participants; descriptive statistics and a One-way ANOVA with $\alpha = 0.05$ were used to analyze the data.

**Final Grades Age.** The independent variable “AGEMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of traditional versus non-traditional students, according to whether they were enrolled in an on-ground or online course. The variables were analyzed in SPSS, according to 771 student participants using descriptive statistics and a One-way ANOVA with $\alpha = 0.05$.

**Final Grades Within Courses.** Once the researcher determined that there was a significant difference in the final grade of on-ground compared to online courses overall, and between courses, additional analyses were performed to evaluate whether there were any significant differences within each course. The same instructor delivered both modes of delivery, on-ground and online in each subject area; thus, this analysis controlled for instructor. Final grade comparison were made for each mode of delivery based upon gender, race and age in Financial Accounting I (ACCT 200), Financial Accounting II (ACCT 201), English Composition I (ENGL 101), and Introduction to Computer Science (CSCI 101).

**Final Grade Within Courses.** Once the researcher determined that there was a significant difference in the final grade the of on-ground compared to online courses overall, and between courses, additional analyses were performed to evaluate whether there were any significant differences within each course. The same instructor delivered both modes of delivery, on-ground and online in each subject area; thus, this analysis
controlled for instructor. Final grade comparisons were made for each mode of delivery based upon gender, race and age in Financial Accounting I (ACCT 200), Financial Accounting II (ACCT 201), English Composition I (ENGL 101), and Introduction to Computer Science (CSCI 101).

**ACCT 200 Final Grade Gender.** The independent variable “GENDERMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of student attrition for male versus female students in Financial Accounting I by the researcher sorting the previous data file by cases and creating a new file for Financial Accounting I data. The grouping variable “GENDERMODE” consisted of four levels, which were female online students, male online, female on-ground students, and male on-ground students in Financial Accounting I. Final grade of males versus females was analyzed in SPSS, according to the total students 172 students with gender data using descriptive statistics and a One-way ANOVA with an $\alpha = .05$.

**ACCT 200 Final Grade Race.** The independent variable “RACEMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of majority versus minority students in Financial Accounting I by the researcher sorting the previous data file by cases and creating a new file for just Financial Accounting I data. ‘RACEMODE’ included four levels, majority online, minority online, majority on-ground and minority on-ground in Financial Accounting I. Final grade of majority versus minority students was analyzed in SPSS, according to the total students 168 students with race data using descriptive statistics and a one-way ANOVA with an $\alpha = .05$.

**ACCT 200 Final Grade Age.** The independent variable “AGEMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of traditional
versus non-traditional students in Financial Accounting I. “AGEMODE” consisted of four levels, which were traditional students online, non-traditional students online, traditional students on-ground, and non-traditional students on-ground in Financial Accounting I. Final Grade of traditional versus non-traditional students was analyzed in SPSS, according to the 172 student participants using descriptive statistics and a one-way ANOVA with an $\alpha = .05$.

**ACCT 201 Final Grade Gender.** The independent variable “GENDERMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of male versus female students in Financial Accounting II by the researcher sorting the previous data file by cases and creating a new file for Financial Accounting II data. The grouping variable “GENDERMODE” consisted of four levels, which were female online students, male online, female on-ground students, and male on-ground students in Financial Accounting II. Final grade rate of males versus females was analyzed in SPSS, according to the total students 145 students with gender data using descriptive statistics and a One-way ANOVA with an $\alpha = .05$.

**ACCT 201 Final Grade Race.** The independent variable “RACEMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of majority versus minority students in Financial Accounting II by the researcher sorting the previous data file by cases and creating a new file for just Financial Accounting II data. ‘RACEMODE’ included four levels, majority online, minority online, majority on-ground and minority on-ground in Financial Accounting II. The final grade of majority versus minority students was analyzed in SPSS, according to the total students 144
students with race data using descriptive statistics and a one-way ANOVA with an $\alpha = .05$.

**ACCT 201 Final Grade Age.** The independent variable “AGEMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of traditional versus non-traditional students in Financial Accounting II. “AGEMODE” consisted of four levels, which were traditional students online, non-traditional students online, traditional students on-ground, and non-traditional students on-ground in Financial Accounting II. Attrition of traditional versus non-traditional students was analyzed in SPSS, according to the 145 student participants using descriptive statistics and a one-way ANOVA with an $\alpha = .05$.

**ENGL 101 Final Grade Gender.** The independent variable “GENDERMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of male versus female students in English Composition I by the researcher sorting the previous data file by cases and creating a new file for English Composition I data. The grouping variable “GENDERMODE” consisted of four levels, which were female online students, male online, female on-ground students, and male on-ground students in English Composition I. Final grade of males versus females was analyzed in SPSS, according to the total students 206 students with gender data using descriptive statistics and a One-way ANOVA with an $\alpha = 05$.

**ENGL 101 Final Grade Race.** The independent variable “RACEMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of majority versus minority students in English Composition I by the researcher sorting the previous data file by cases and creating a new file for just Financial Accounting I data.
'RACEMODE' included four levels, majority online, minority online, majority on-ground and minority on-ground in English Composition I. The final grade of majority versus minority students was analyzed in SPSS, according to the total students 203 students with race data using descriptive statistics and a one-way ANOVA with an $\alpha = .05$.

**ENGL 101 Final Grade Age.** The independent variable “AGEMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of traditional versus non-traditional students in English Composition I. “AGEMODE” consisted of four levels, which were traditional students online, non-traditional students online, traditional students on-ground, and non-traditional students on-ground in English Composition I. Attrition of traditional versus non-traditional students was analyzed in SPSS, according to the 203 student participants using descriptive statistics and a one-way ANOVA with an $\alpha = .05$.

**CSCI 101 Final Grade Gender.** The independent variable “GENDERMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of male versus female students in Introduction to Computer Science by the researcher sorting the previous data file by cases and creating a new file for Financial Accounting I data. The grouping variable “GENDERMODE” consisted of four levels, which were female online students, male online, female on-ground students, and male on-ground students in Introduction to Computer Science. Final grade of males versus females was analyzed in SPSS, according to the total students 247 students with gender data using descriptive statistics and a One-way ANOVA with an $\alpha = 05$. 
**CSCI 101 Final Grade Race.** The independent variable “RACEMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of majority versus minority students in Introduction to Computer Science by the researcher sorting the previous data file by cases and creating a new file for just Introduction to Computer Science data. ‘RACEMODE’ included four levels, majority online, minority online, majority on-ground and minority on-ground in Introduction to Computer Science. The final grade of majority versus minority students was analyzed in SPSS, according to the total students 242 students with race data using descriptive statistics and a one-way ANOVA with an \( \alpha = .05 \).

**CSCI 101 Final Grade Age.** The independent variable “AGEMODE” and the dependent variable “FINALGRADE2” were used to analyze the final grade of traditional versus non-traditional students in Introduction to Computer Science. “AGEMODE” consisted of four levels, which were traditional students online, non-traditional students online, traditional students on-ground, and non-traditional students on-ground in Introduction to Computer Science. Final grade of traditional versus non-traditional students was analyzed in SPSS, according to the s 250 student participants using descriptive statistics and a one-way ANOVA with an \( \alpha = .05 \).

**Student Perceptions Overall**

Student perceptions according to the *Student Rating of Faculty* survey were analyzed to compare the effectiveness of on-ground courses compared to online courses overall in the area of instructional design, instructor attitude, instructor support and instructor expertise. The independent variable ‘COURSEDELIVERY’ and dependent variables, ‘INSTRDES,’ ‘INSTRATT,’ ‘INSTRSUPP,’ and ‘INSTREXP’ were analyzed
with descriptive statistics and a One-way ANOVA with a $\alpha = 0.05$ according to the number of students (N = 177) who returned the survey, on-ground (n = 87) and online (n = 90).

**Student Perceptions Course.** Student perceptions according to the *Student Rating of Faculty* survey were analyzed to compare the effectiveness of on-ground courses compared to online courses in the area of instructional design, instructor attitude, instructor support and instructor expertise. The independent variable ‘COURSEMODE’ and dependent variables, ‘INSTRDES,’ ‘INSTRATT,’ ‘INSTRSUPP,’ and ‘INSTREXP’ were analyzed with descriptive statistics and a one-way ANOVA with a $\alpha = 0.05$ according to the number of 177 student participants.

**Student Perceptions of Instructional Design.** Student perceptions according to the *Student Rating of Faculty* survey were analyzed to compare the effectiveness of specific on-ground courses to their traditional counterpart online course in the area of instructional design. The independent variable ‘COURSEMODE’ and dependent variable was ‘INSTRDES,’ was analyzed with descriptive statistics and a one-way ANOVA with $\alpha = 0.05$ according to 176 student participants.

**Student Perceptions of Instructor Attitude.** Student perceptions according to the *Student Rating of Faculty* survey were analyzed to compare the effectiveness of specific on-ground courses to their traditional counterpart online course in the area of instructor attitude. The independent variable ‘COURSEMODE’ and dependent variable was ‘INSTRATT,’ was analyzed with descriptive statistics and a one-way ANOVA with $\alpha = 0.05$ to 176 student participants.
Student Perceptions of Instructor Support. Student perceptions according to the Student Rating of Faculty survey were analyzed to compare the effectiveness of specific on-ground courses to their traditional counterpart online course in the area of instructor support. The independent variable ‘COURSEMODE’ and dependent variable was ‘INSTRSUPP,’ was analyzed with descriptive statistics and a one-way ANOVA with $\alpha = 0.05$ according to 176 student participants.

Student Perceptions of Instructor Expertise. Student perceptions according to the Student Rating of Faculty survey were analyzed to compare the effectiveness of specific on-ground courses to their traditional counterpart online course in the area of instructor expertise. The independent variable ‘COURSEMODE’ and dependent variable was ‘INSTREXP,’ was analyzed with descriptive statistics and a one-way ANOVA with $\alpha = 0.05$ according to 176 student participants.

Validity

To date, the staff at Baton Rouge Community College is researching the original constructs of validity for the survey instrument used in this study, the Student Rating of Faculty. No alpha levels were provided for the researcher, but the institutional research department administrator explained that the Student Rating of Faculty survey in both the online and on-ground versions appears to have reasonably crafted constructs according to her 25 years of experience as a statistician. She believes that content analysis was performed during the initial development of the instrument by an expert item analysis prior to publication. While the college has committed to providing additional information on the instrument in the near future, no further information has been provided to date.
Theoretical Framework

The theoretical framework of this research is grounded in two theories, general systems theory (GST), and human capital theory. By analyzing student data that is directly linked to the instructor, several interests of several educational stakeholders are addressed with this research study, the institution, instructors and students. Institutions are interested in the most efficient and effective means to facilitate both faculty and students. Instructors, in general have a commitment to their craft, and students are seeking learning, whereby both can benefit from information concerning the learning resources or modes of delivery that are available and who can benefit from them. These reasons and more create a need for research to be more holistic, rather than focusing on individual units of the college through reductionism. Furthermore, effectiveness analysis is rooted in the human capital theory or the process of evaluating the outcome of investment in human kind to increase their productivity in society.

General Systems Theory

Ludwig von Bertalanffy is the founding father of general systems theory. Hofkerchner (2005) explains that von Bertalanffy revitalized synthetically thinking or the thinking process that puts things back together once they have been dismantled because of his concern that civilization develop a new thought process imperative for future existence. Systems research and practice was developed from these ideas. Peter Senge is a contemporary advocate of systems theory, evaluating the educational system holistically. Senge emerged with the concept of organizational development in his book entitled, the Fifth Discipline. Smith (2001) explains that Senge believed that systems thinking is the cornerstone of the learning organization, as the individual being studied
constantly interacts with the system Because Baton Rouge Community College is a constant reaction between stakeholders, such as administration/staff, faculty and students, multiple perspectives of effectiveness are necessary to explore alternative modes of course delivery, as suggested by general systems theory.

**Human Capital Theory**

Furthermore, some believe that the prosperity of a nation is dependent upon its physical and human stock; likewise, human capital theory postulates that human education is necessary to increase the productivity of a people (Olaniyan and Okemakinde, 2008). The growth and expansion of higher education in the recent past is evidence that human capital theory is important to citizens. People are now more than ever investing in higher education because an increased skill set creates more employment opportunities. The field of the economics of education was developed from human capital theory, which was devoted to the estimation the rates of return for educational investments in studies like cost effectiveness analysis.

Human capital theory was coined by Theodore W. Schultz in the 1960s, but further developed by his student Gary S. Becker who established human capital as the outcome of an investment process (Encyclopedia Britannica Online, 2009). Becker suggested that because the process of acquiring education for productivity is costly, students would only make investments in education if the future return on investment is greater than the present costs to acquire the skills.
CHAPTER FOUR: RESEARCH FINDINGS

The purpose of this study was to evaluate the effectiveness of courses delivered online to those delivered on-ground that used the same instructor for both delivery methods at Baton Rouge Community College during the fall and spring semester of 2010. This chapter presents the findings from the attrition, final grades, and student perceptions according to *Student Rating of Faculty survey* instrument.

**Attrition Overall**

**Descriptive Statistics**

As indicated in Table 4.1, there was a total of 416 (54%) students enrolled in on-ground courses that were included in this study. There were a total of 355 (46%) students enrolled in online courses. Of the 355 students who were enrolled in online courses, 201 (57%) received a passing grade, indicating that there was a 43% rate of attrition in on-ground courses, overall. Of the 416 students who were enrolled in on-ground courses, 270 (65%) received a passing grade, indicating that there was a 35% rate of attrition for on-ground courses, as shown in Table 4.1.

**Table 4.1. Overall Attrition of Online Courses Compared to On-ground**

<table>
<thead>
<tr>
<th></th>
<th>Online Enrolled</th>
<th>W/F/0</th>
<th>Passing Enrolled</th>
<th>Online Attrition</th>
<th>On-ground Enrolled</th>
<th>W/F/0</th>
<th>Passing Enrolled</th>
<th>On-ground Attrition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>355</td>
<td>154</td>
<td>201</td>
<td>43%</td>
<td>416</td>
<td>146</td>
<td>270</td>
<td>35%</td>
</tr>
</tbody>
</table>

**Results**

An independent sample test of proportion was conducted to compare the overall rate of student attrition in courses delivered on-ground and courses delivered online.
There was a significant difference in the rate of attrition for on-ground courses and online courses with 95% level of confidence.

**Attrition Between Course Comparisons**

**Descriptive Statistics**

There were 771 student participants to compare the effectiveness according to attrition of specific courses in the on-ground mode of delivery and online. Of the total, 72 (9%) students were enrolled in Financial Accounting I on-ground and 100 (13%) students were enrolled in the online course. Financial Accounting II had 99 (13%) students in the on-ground course and 45 (6%) in the online course. English Composition I had 139 (18%) on-ground students and 65 (8%) online students. Introduction to Computer Science had 107 (14%) on-ground students and 144 (19%) online students, as indicated on Table 4.2.

**Table 4.2. Attrition of On-ground Compared to Online Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>On-ground</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 201, Financial Accounting I</td>
<td>72</td>
<td>100</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting II</td>
<td>99</td>
<td>45</td>
</tr>
<tr>
<td>ENGL 101, English Composition I</td>
<td>139</td>
<td>65</td>
</tr>
<tr>
<td>CSCI 101, Intro to Computer Technology</td>
<td>107</td>
<td>144</td>
</tr>
</tbody>
</table>

**Results**

Table 4.2 documents the attrition rate of attrition between the courses of Financial Accounting I, Financial Accounting II, English Composition, and Introduction to Computer Science.
Descriptive Statistics

There were a total of 767 students who received an attrition score. There were 239 (31%) female on-ground students and 234 (30%) female online students. There were 177 (23%) male on-ground students and 119 (15%) male online students.

Figure 4.1. Number of students according to gender.

Table 4.3. Attrition According to Gender in On-ground Compared to Online Courses

<table>
<thead>
<tr>
<th>Gender</th>
<th>On-ground</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Female</td>
<td>239</td>
<td>39</td>
</tr>
<tr>
<td>Male</td>
<td>177</td>
<td>37</td>
</tr>
</tbody>
</table>

Results

Table 4.3 documents the attrition rate between the online course females, on-ground course females, online courses males, and on-ground course males.
Attrition Race Comparison

Descriptive Statistics

There were a total of 751 students participants who were classified as either minority or majority. There were 204 (27%) majority students on-ground and 169 (22%) majority students online. There were 201 (27%) minority on-ground students and 177 (24%) minority online students.

Figure 4.2. Number of students according to race.

Results

Table 4.4 documents the rate of attrition of online majority students, on-ground majority students, online minority students, and on-ground minority students.
Table 4.2. Attrition According to Race in On-ground Compared to Online Courses

<table>
<thead>
<tr>
<th>Race</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Majority</td>
<td>204</td>
<td>37</td>
<td>169</td>
<td>42</td>
</tr>
<tr>
<td>Minority</td>
<td>201</td>
<td>40</td>
<td>177</td>
<td>56</td>
</tr>
</tbody>
</table>

**Attrition Age Comparison**

**Descriptive Statistics**

There were a total of 771 student participants who were classified as either traditional or non-traditional students. There were 244 (32%) traditional students on-ground and 179 (23%) traditional students online. There were 172 (22%) non-traditional on-ground students and 176 (23%) non-traditional online students.

![Bar Chart](image)

Figure 4.3. Number of students according to age.
Results

Table 4.5 documents the rate of attrition for online traditional students, on-ground traditional students, online non-traditional students, and on-ground non-traditional students.

Table 4.5. Attrition According to Age in On-ground Compared to Online Courses

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Attrition (%)</th>
<th>N</th>
<th>Attrition (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>244</td>
<td>44</td>
<td>179</td>
<td>57</td>
</tr>
<tr>
<td>Non-traditional</td>
<td>172</td>
<td>30</td>
<td>176</td>
<td>41</td>
</tr>
</tbody>
</table>

Attrition Within Course Comparison

ACCT 200 Attrition Gender

Descriptive Statistics. There were a total of 172 students who received an attrition score in Financial Accounting I. There were 35 (20%) female on-ground students and 68 (39%) female online students. There were 37 (22%) male on-ground students and 32 (19%) male online students.

Results. Table 4.6 documents the rate of attrition according to gender in Financial Accounting I of online female students, on-ground female students, online male students, and on-ground male students.

Table 4.6. Attrition According to Gender in Financial Accounting I

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Attrition (%)</th>
<th>N</th>
<th>Attrition (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>35</td>
<td>29</td>
<td>68</td>
<td>31</td>
</tr>
<tr>
<td>Male</td>
<td>37</td>
<td>10</td>
<td>32</td>
<td>14</td>
</tr>
</tbody>
</table>

ACCT 200 Attrition Race

Descriptive Statistics. There were a total of 168 students participants who were classified as either minority or majority students in Financial Accounting I. There were
36 (21%) majority students on-ground and 56 (33%) majority students online. There were
33 (20%) minority on-ground students and 43 (26%) minority online students.

Results. Table 4.7 documents the rate of attrition in Financial Accounting I for
online majority students, on-ground majority students, online minority students and on-
ground minority students.

Table 4.7. Attrition According to Race in Financial Accounting I

<table>
<thead>
<tr>
<th>Race</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Majority</td>
<td>36</td>
<td>39</td>
<td>56</td>
<td>32</td>
</tr>
<tr>
<td>Minority</td>
<td>33</td>
<td>18</td>
<td>43</td>
<td>37</td>
</tr>
</tbody>
</table>

ACCT 200 Attrition Age

Descriptive Statistics. There were a total of 172 student participants who were
classified as either traditional or non-traditional students in Financial Accounting I. There
were 43 (25%) traditional students on-ground and 56 (33%) traditional students online.
There were 24 (14%) non-traditional on-ground students and 44 (26%) non-traditional
online students.

Results. Table 4.8 lists the rate of attrition in Financial Accounting I for online
traditional students, on-ground traditional students, online non-traditional students, and
on-ground non-traditional students.

Table 4.8. Attrition According to Age in Financial Accounting I

<table>
<thead>
<tr>
<th>Age</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Traditional</td>
<td>48</td>
<td>29</td>
<td>56</td>
<td>44</td>
</tr>
<tr>
<td>Non-traditional</td>
<td>24</td>
<td>25</td>
<td>44</td>
<td>23</td>
</tr>
</tbody>
</table>
ACCT 201 Attrition Gender

**Descriptive Statistics.** There were a total of 145 students who received an attrition score in Financial Accounting II. There were 60 (41%) female on-ground students and 33 (23%) female online students. There were 39 (27%) male on-ground students (M = 1.15, SD = .37) and 13 (9%) male online students.

**Results.** Table 4.9 documents the rate of attrition in Accounting II for online female students, on-ground female students, online male students, and on-ground male students.

<table>
<thead>
<tr>
<th>Gender</th>
<th>On-ground</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Female</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>Male</td>
<td>39</td>
<td>15</td>
</tr>
</tbody>
</table>

ACCT 201 Attrition Race

**Descriptive Statistics.** There were a total of 143 students participants who were classified as either minority or majority in Financial Accounting II. There were 51 (36%) majority students on-ground and 17 (12%) majority students online. There were 47 (33%) minority on-ground students and 29 (20%) minority online students.

**Results.** Table 4.10 lists the rate of attrition in Financial Accounting II for online majority students, on-ground majority students, online minority students and on-ground minority students.

<table>
<thead>
<tr>
<th>Race</th>
<th>On-ground</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Majority</td>
<td>51</td>
<td>12</td>
</tr>
<tr>
<td>Minority</td>
<td>47</td>
<td>18</td>
</tr>
</tbody>
</table>
ACCT 201 Attrition Age

**Descriptive Statistics.** There were a total of 145 student participants who received who were classified as either traditional or non-traditional students in Financial Accounting II. There were 43 (30%) traditional students on-ground and 17 (12%) traditional students online. There were 56 (39%) non-traditional on-ground students and 44 (30%) non-traditional online students.

**Results.** Table 4.11 lists the rate of attrition in Financial Accounting II for online traditional students, on-ground traditional students, online non-traditional students, and on-ground non-traditional students.

<table>
<thead>
<tr>
<th>Age</th>
<th>On-ground</th>
<th>Online</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
<td>N</td>
<td>Attrition (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional</td>
<td>43</td>
<td>12</td>
<td>17</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-traditional</td>
<td>56</td>
<td>13</td>
<td>44</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ENGL 101 Attrition Gender

**Descriptive Statistics.** There were a total of 203 students who received an attrition score in English Composition I. There were 85 (41%) female on-ground students and 44 (22%) female online students. There were 53 (26%) male on-ground students and 21 (10%) male online students.

**Results.** Table 4.12 documents the rate of attrition in English Composition I for online female students, on-ground female students, online male students and on-ground male students.
Table 4.12. Attrition According to Gender in English Composition I

<table>
<thead>
<tr>
<th>Gender</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Female</td>
<td>85</td>
<td>57</td>
<td>44</td>
<td>50</td>
</tr>
<tr>
<td>Male</td>
<td>53</td>
<td>62</td>
<td>21</td>
<td>62</td>
</tr>
</tbody>
</table>

**ENGL 101 Attrition Race**

**Descriptive Statistics.** There were a total of 196 students participants who were classified as either minority or majority in English Composition I. There were 72 (37%) majority students on-ground and 34 (17%) majority students online. There were 61 (31%) minority on-ground students and 29 (15%) minority online students.

**Results.** Table 4.13 documents the rate of attrition English Composition I for online majority students, on-ground majority students, online minority students, and on-ground minority students.

Table 4.13. Attrition According to Race in English Composition I

<table>
<thead>
<tr>
<th>Race</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Majority</td>
<td>72</td>
<td>53</td>
<td>34</td>
<td>50</td>
</tr>
<tr>
<td>Minority</td>
<td>61</td>
<td>66</td>
<td>29</td>
<td>59</td>
</tr>
</tbody>
</table>

**ENGL 101 Attrition Age**

**Descriptive Statistics.** There were a total of 203 student participants who received who were classified as either traditional or non-traditional students in English Composition I. There were 96 (47%) traditional students on-ground and 29 (14%) traditional students online. There were 42 (21%) non-traditional on-ground students and 36 (18%) non-traditional online students.
Results. Table 4.14 documents the rate of attrition in English Composition I for online traditional students, on-ground traditional students, online non-traditional students, and on-ground non-traditional students.

Table 4.14. Attrition According to Age in English Composition I

<table>
<thead>
<tr>
<th>Age</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Traditional</td>
<td>96</td>
<td>65</td>
<td>29</td>
<td>62</td>
</tr>
<tr>
<td>Non-traditional</td>
<td>42</td>
<td>45</td>
<td>36</td>
<td>47</td>
</tr>
</tbody>
</table>

CSCI 101 Attrition Gender

Descriptive Statistics. There were a total of 248 students who received an attrition score in Introduction to Computer Science. There were 58 (23%) female on-ground students and 89 (36%) female online students. There were 48 (19%) male on-ground students and 53 (21%) male online students.

Results. Table 4.15 documents the rate of attrition in Introduction to Computer Science for online female students, on-ground female students, online male students, and on-ground male students.

Table 4.15. Attrition According to Gender in Intro to Computer Science

<table>
<thead>
<tr>
<th>Gender</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Female</td>
<td>58</td>
<td>52</td>
<td>89</td>
<td>61</td>
</tr>
<tr>
<td>Male</td>
<td>48</td>
<td>35</td>
<td>53</td>
<td>61</td>
</tr>
</tbody>
</table>

CSCI 101 Attrition Race

Descriptive Statistics. Descriptive Statistics. There were a total of 242 students participants who were classified as either minority or majority in Introduction to Computer Science. There were 45 (19%) majority students on-ground and 62 (26%)
majority students online. There were 59 (24%) minority on-ground students and 76 (31%) minority online students.

**Results.** Table 4.16 documents the rate of attrition in Introduction to Computer Science for online majority students, on-ground majority students, online minority students, and on-ground minority students.

Table 4.16. Attrition According to Race in Intro to Computer Science

<table>
<thead>
<tr>
<th>Race</th>
<th>N</th>
<th>Attrition (%)</th>
<th>N</th>
<th>Attrition (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Majority</td>
<td>45</td>
<td>40</td>
<td>62</td>
<td>53</td>
</tr>
<tr>
<td>Minority</td>
<td>59</td>
<td>49</td>
<td>76</td>
<td>69</td>
</tr>
</tbody>
</table>

**CSCI 101 Attrition Age**

**Descriptive Statistics.** There were a total of 250 student participants who received who were classified as either traditional or non-traditional students in Introduction to Computer Science. There were 57 (23%) traditional students on-ground and 77 (31%) traditional students online. There were 49 (20%) non-traditional on-ground students and 67 (27%) non-traditional online students.

**Results.** Table 4.17 documents the rate of attrition in Introduction to Computer Science for online traditional students, on-ground traditional students, online traditional students, and on-ground traditional students.

Table 4.17. Attrition According to Age in Intro to Computer Science

<table>
<thead>
<tr>
<th>Age</th>
<th>On-ground</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Attrition (%)</td>
</tr>
<tr>
<td>Traditional</td>
<td>57</td>
<td>48</td>
</tr>
<tr>
<td>Non-traditional</td>
<td>49</td>
<td>41</td>
</tr>
</tbody>
</table>
Final Grades Overall

Descriptive Statistics

There was a total on 416 (54%) on-ground student participants for the final grade overall portion of this study (M = 1.63, SD = 1.49). There were 355 (46%) students enrolled in online final grade student participants (M = 1.37, SD = 1.56), as indicated in the following table.

Table 4.18. Final Grades for Overall Course Delivery

<table>
<thead>
<tr>
<th>Course Delivery</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-ground</td>
<td>416</td>
<td>1.63</td>
<td>1.49</td>
</tr>
<tr>
<td>Online</td>
<td>355</td>
<td>1.37</td>
<td>1.56</td>
</tr>
</tbody>
</table>

Results

Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which not was significant (p = .12); therefore, variances were assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on student final grades the ‘on-ground’ and ‘online’ condition. There was a significant effect of course delivery on final grades at the (p < .05) level for the two conditions [F(1, 769) = 5.40, p = .02]. No post hoc tests were required.

Final Grade Between Course Comparisons

Descriptive Statistics

There were 771 student participants to compare the effectiveness according to student final grades for specific courses in the on-ground and online mode of delivery. Of the total, 72 (9%) students were enrolled in Financial Accounting I on-ground (M = 2.04, SD = 1.51) and 100 (13%) students were enrolled in the online course (M = 1.83, SD = 1.61). Financial Accounting II had 99 (13%) students in the on-ground course (M = 2.36,
SD = 1.19) and 45 (6%) in the online course (M = 1.69, SD = 1.52). English Composition I had 139 (18%) on-ground students (M = .99, SD = 1.31) and 65 (8%) online students (M = 1.12, SD = 1.45). Introduction to Computer Science had 107 (14%) on-ground students (M = 1.51, SD = 1.57) and 144 (19%) online students (M = 1.06, SD = 1.50).

**Results**

Homogeneity of variance assumptions were assessed using the Levene Test for the Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-Howell post hoc test was performed in which variances are not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on final grades in the ‘on-ground’ and ‘online’ condition. There was a significant effect of course delivery on the final grade at the (p < .05) level for the two conditions [F(7, 763) = 12.98, p = .00]. However, there was no significant difference between the two courses that the same instructor in both the online and online mode. There was a significant difference across course disciplines, in which is not a focus of this research.

<table>
<thead>
<tr>
<th>Course</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  Mean</td>
<td>SD</td>
<td>N  Mean</td>
<td>SD</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting I</td>
<td>72  2.04</td>
<td>1.51</td>
<td>100  1.83</td>
<td>1.61</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting II</td>
<td>99  2.36</td>
<td>1.19</td>
<td>45  1.69</td>
<td>1.52</td>
</tr>
<tr>
<td>ENGL 101, English Composition I</td>
<td>139 .99</td>
<td>1.31</td>
<td>65  1.12</td>
<td>1.45</td>
</tr>
<tr>
<td>CSCI 101, Intro to Computer Science</td>
<td>107 1.51</td>
<td>1.57</td>
<td>144 1.06</td>
<td>1.50</td>
</tr>
</tbody>
</table>

Post hoc comparisons using the Games-Howell test indicated that the mean score for final grade in Financial Accounting II on-ground (M = 2.36, SD = 1.19) was not significantly different than final grades in Financial Accounting II online (M = 1.69, SD = 1.52). Financial Accounting I on-ground (M = 2.04, SD = 1.51) was not significantly
different in terms of student final grades than the online course (M = 1.83, SD = 1.61).

English Composition I on-ground students’ final grades (M = .99, SD = 1.308) and 65 (8%) online students’ final grades (M = 1.12, SD = 1.45) were not significantly different. Introduction to Computer Science on-ground students’ final grades (M = 1.51, SD = 1.57) and the online students’ final grades (M = 1.06, SD = 1.50) also were not significantly different, as indicated in Table 4.19.

**Final Grade Gender Comparison**

**Descriptive Statistics**

There were a total of 767 student participants for the final grade effectiveness comparison of male and female students taking courses delivered on-ground and online.

Table 4.20. Final Grade According to Gender in On-ground Compared to Online Courses

<table>
<thead>
<tr>
<th>Gender</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Female</td>
<td>239</td>
<td>1.59</td>
<td>1.49</td>
<td>234</td>
</tr>
<tr>
<td>Male</td>
<td>177</td>
<td>1.67</td>
<td>1.49</td>
<td>119</td>
</tr>
</tbody>
</table>

There were 239 (31%) female on-ground students (M = 1.59, SD = 1.48) and 234 (30%) female online students (M = 1.42, SD = 1.54). There were 177 (23%) male on-ground students (M = 1.67, SD = 1.49) and 117 (15%) male online students (M = 1.29, SD = 1.61).

**Results**

Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was not significant (p = .11); therefore, variance was assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on the final grade in the ‘male’ and ‘female’ condition. There
was a not significant effect of course delivery on the final grade at the (p < .05) level for the two conditions [F(3, 765) = 3.1, p = .11]. No post hoc tests were required.

**Final Grades Race Comparison**

**Descriptive Statistics**

There were a total of 751 student participants who were classified as either minority or majority for final grade comparison in the on-ground and online mode of delivery. There were 204 (27%) majority students on-ground (M = 1.74, SD = 1.56) and 169 (22%) majority students online (M = 1.75, SD = 1.69). There were 201 (27%) minority on-ground students (M = 1.50, SD = 1.42) and 177 (24%) minority online students (M = 1.03, SD = 1.37).

**Results**

Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-Howell post hoc test was performed, in which variances are not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on final grade in the ‘majority’ and ‘minority’ condition. There was a significant effect of course delivery on the final grade at the (p < .05) level for the two conditions [F(3, 747) = 8.90, p = .00].

<table>
<thead>
<tr>
<th>Race</th>
<th>On-ground</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Majority</td>
<td>204</td>
<td>1.37</td>
</tr>
<tr>
<td>Minority</td>
<td>201</td>
<td>1.40</td>
</tr>
</tbody>
</table>

Note. Means with differing subscripts are significantly different at the p < .05 based on the Games-Howell post hoc paired comparisons.
Post hoc comparisons using the Games-Howell indicated that the final grade for majority students in on-ground courses (M = 1.74, SD = 1.56) was significantly different than final grade for minority students online (M = 1.03, SD = 1.37). There was a significant difference in the final grade of majority students online (M = 1.75, SD = 1.69) compared to the final grade of minority students online courses (M = 1.03, SD = 1.37). Final grade for minority students in online courses (M = 1.03, SD = 1.37) was significantly different than final grade of minority students in on-ground courses (M = 1.50, SD = 1.42).

Final Grade Age Comparison

Descriptive Statistics

There were a total of 771 student participants who were classified as either traditional or non-traditional students, in which effectiveness was evaluated in on-ground compared to online courses. There were 244 (32%) traditional students on-ground (M = 1.41, SD = 1.45) and 179 (23%) traditional students online (M = 1.15, SD = 1.51). There were 172 (22%) non-traditional on-ground students (M = 1.94, SD = 1.49) and 176 (23%) non-traditional online students (M = 1.60, SD = 1.59).

Results

Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-Howell post hoc test was performed, in which variances are not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on final grade in the ‘traditional’ and ‘non-traditional’ condition. There was a significant effect of course delivery on the final grade at the (p < .05) level for the two conditions [F(3, 767) = 8.71, p = .00].
Post hoc comparisons using the Games-Howell indicated that the final grade of traditional students in on-ground courses (M = 1.44, SD = 1.45) was significantly different than final grades of non-traditional students on-ground (M = 1.94, SD = 1.49) and traditional students’ final grades online (M = 1.15, SD = 1.51) were significantly different than non-traditional students on-ground (M = 1.94, SD = 1.49) and non-traditional student final grades online (M = 1.60, SD = 1.59).

Table 4.22. Final Grade According to Age in On-ground Compared to Online Courses

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>244</td>
<td>1.44</td>
<td>1.45</td>
<td>179</td>
<td>1.15</td>
<td>1.51</td>
</tr>
<tr>
<td>Non-traditional</td>
<td>172</td>
<td>1.94</td>
<td>1.49</td>
<td>176</td>
<td>1.60</td>
<td>1.59</td>
</tr>
</tbody>
</table>

Note. Means with differing subscripts are significantly different at the p < .05 based on the Games-Howell post hoc paired comparisons.

Final Grades Within Course Comparison

ACCT 200 Final Grade Gender

Descriptive Statistics. There were a total of 172 student participants for the final grade effectiveness comparison of male and female students taking courses delivered on-ground and online in Financial Accounting I. There were 35 (20%) female on-ground students (M = 1.91, SD = 1.46) and 68 (39%) female online students (M = 1.85, SD = 1.59). There were 37 (22%) male on-ground students (M = 2.16, SD = 1.56) and 32 (19%) male online students (M = 1.78, SD = 1.68).

Table 4.23. Final Grade According to Gender in Financial Accounting I

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>35</td>
<td>1.91</td>
<td>1.46</td>
<td>68</td>
<td>1.85</td>
<td>1.57</td>
</tr>
<tr>
<td>Male</td>
<td>37</td>
<td>2.16</td>
<td>1.56</td>
<td>32</td>
<td>1.78</td>
<td>1.68</td>
</tr>
</tbody>
</table>
**Results.** Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was not significant (p = .24); therefore, variance was assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on the final grade in the ‘male’ and ‘female’ condition. There was a not significant effect of course delivery on the final grade at the (p < .05) level for the two conditions \[F(3, 168) = .42, p = .74\]. No post hoc tests were required.

**ACCT 200 Final Grade Race**

**Descriptive Statistics.** There were a total of 168 student participants who were classified as either minority or majority for final grade comparison in the on-ground and online mode of delivery in Financial Accounting I. There were 36 (21%) majority students on-ground (M = 1.89, SD = 1.75) and 56 (33%) majority students online (M = 2.07, SD = 1.67). There were 33 (19%) minority on-ground students (M = 2.15, SD = 1.23) and 43 (26%) minority online students (M = 1.56, SD = 1.49).

**Results.** Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .00); therefore, variances were not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on final grade in the ‘majority’ and ‘minority’ condition. There was not a significant effect of course delivery on the final grade at the (p < .05) level for the two conditions \[F(3, 164) = 1.19, p = .32\].

**Table 4.24. Final Grade According to Race Financial Accounting I**

<table>
<thead>
<tr>
<th>Race</th>
<th>On-ground</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Majority</td>
<td>36</td>
<td>1.89</td>
</tr>
<tr>
<td>Minority</td>
<td>33</td>
<td>2.15</td>
</tr>
</tbody>
</table>
ACCT 200 Final Grade Age

**Descriptive Statistics.** There were a total of 168 student participants who were classified as either traditional or non-traditional students, in which effectiveness was evaluated in on-ground compared to online courses in Financial Accounting I. There were 48 (29%) traditional students on-ground (M = 1.90, SD = 1.45) and 56 (33%) traditional students online (M = 1.75, SD = 1.74). There were 24 (14%) non-traditional on-ground students (M = 2.33, SD = 1.61) and 44 (26%) non-traditional online students (M = 1.92, SD = 1.57).

**Results.** Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .02); therefore, variances were not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on final grade in the ‘traditional’ and ‘non-traditional’ condition. There was not a significant effect of course delivery on the final grade at the (p < .05) level for the two conditions [F(3, 168) = .78, p = .51].

<table>
<thead>
<tr>
<th>Age</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Traditional</td>
<td>48</td>
<td>1.90</td>
<td>1.45</td>
<td>56</td>
</tr>
<tr>
<td>Non-traditional</td>
<td>24</td>
<td>2.33</td>
<td>1.61</td>
<td>44</td>
</tr>
</tbody>
</table>

ACCT 201 Final Grade Gender

**Descriptive Statistics.** There were a total of 145 student participants for the final grade effectiveness comparison of male and female students taking courses delivered on-ground and online in Financial Accounting II. There were 60 (41%) female on-ground students (M = 2.50, SD = 1.20) and 33 (23%) female online students (M = 1.88, SD =
There were 39 (27%) male on-ground students (M = 2.15, SD = 1.16) and 13 (9%) male online students (M = 1.31, SD = 1.75).

**Results.** Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-Howell post hoc test was performed in which variances are not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on final grade in the ‘male’ and ‘female’ condition. There was a significant effect of course delivery on the rate of final grade at the (p < .05) level for the two conditions [F(3, 141) = 3.77, p = .01]. Post hoc comparisons using the Games-Howell indicated no significant difference final grade of traditional students in on-ground courses.

Table 4.26. Final Grade According to Gender in Financial Accounting II

<table>
<thead>
<tr>
<th>Gender</th>
<th>On-ground</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Female</td>
<td>60</td>
<td>2.50</td>
</tr>
<tr>
<td>Male</td>
<td>39</td>
<td>2.15</td>
</tr>
</tbody>
</table>

**ACCT 201 Final Grade Race**

**Descriptive Statistics.** There were a total of 144 student participants who were classified as either minority or majority for final grade comparison in the on-ground and online mode of delivery in Financial Accounting II. There were 51 (36%) majority students on-ground (M = 2.41, SD = 1.20) and 17 (12%) majority students online (M = 2.41, SD = 1.46). There were 47 (33%) minority on-ground students (M = 2.32, SD = 1.20) and 29 (20%) minority online students (M = 1.31, SD = 1.42).

**Results.** Homogeneity of variance assumptions were assessed using the Levene
Test for Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-Howell post hoc test was performed, in which variances are not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on final grade in the ‘majority’ and ‘minority’ condition. There was a significant effect of course delivery on the final grade at the (p = .00) level for the two conditions [F(3, 140) 5.39, p = .00]. Post hoc comparisons using the Games-Howell indicated that majority on-ground (M = 2.41, SD = 1.20) is significantly different from minority online (M = 1.31, SD = 1.42). Minority on-ground (M = 2.32, SD = 1.20) is significantly different from minority online (M = 1.31, SD = 1.42).

Table 4.27. Final Grade According to Race Financial Accounting II

<table>
<thead>
<tr>
<th>Race</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Majority</td>
<td>51</td>
<td>2.41</td>
<td>a</td>
<td>17</td>
</tr>
<tr>
<td>Minority</td>
<td>47</td>
<td>2.32</td>
<td>a</td>
<td>29</td>
</tr>
</tbody>
</table>

Note. Means with differing subscripts are significantly different at the p < .05 based on the Games-Howell post hoc paired comparisons.

**ACCT 201 Final Grade Age**

**Descriptive Statistics.** There were a total of 145 student participants who were classified as either traditional or non-traditional students, in which effectiveness was evaluated in on-ground compared to online courses in Financial Accounting II. There were 43 (30%) traditional students on-ground (M = 2.23, SD = 1.23) and 17 (12%) traditional students online (M = 1.06, SD = 1.30). There were 56 (39%) non-traditional on-ground students (M = 2.46, SD = 1.16) and 29 (20%) non-traditional online students (M = 2.10, SD = 1.52).
Results. Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which significant \( p = .00 \); therefore, the Bonferroni post hoc test was performed, in which variances are assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on final grade in the ‘traditional ’ and ‘non-traditional’ condition. There was a significant effect of course delivery on the rate of final grade at the \((p < .05)\) level for the two conditions \( [F(3, 141) = 5.36, p = .00] \).

Post hoc comparisons using the Games-Howell test indicated that the mean score for final grade of traditional students in on-ground courses \((M = 2.23, SD = 1.23)\) was significantly different than final grade for traditional students online \((M = 1.06, SD = 1.30)\). Final grade for non-traditional students on-ground \((M = 2.36, SD = 1.15)\) was significantly different than traditional students online \((M = 1.06, SD = 1.30)\). Non-traditional students on-ground \((M = 2.36, SD = 1.15)\) were significantly different than traditional students on-ground \((M = 2.23, SD = 1.23)\).

Table 4.28. Final Grade According to Age in Financial Accounting II

<table>
<thead>
<tr>
<th>Age</th>
<th>On-ground</th>
<th></th>
<th></th>
<th>Online</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Traditional</td>
<td>43</td>
<td>2.23</td>
<td>1.23</td>
<td>17</td>
<td>1.06</td>
<td>1.3</td>
</tr>
<tr>
<td>Non-traditional</td>
<td>56</td>
<td>2.46</td>
<td>1.16</td>
<td>29</td>
<td>2.10</td>
<td>1.52</td>
</tr>
</tbody>
</table>

Note. Means with differing subscripts are significantly different at the \( p < .05 \) based on the Games-Howell post hoc paired comparisons.

ENGL 101 Final Grade Gender

Descriptive Statistics. There were a total of 203 student participants for the final grade effectiveness comparison of male and female students taking courses delivered on-ground and online in English Composition I. There were 85 (42%) female on-ground students \((M = .99, SD = 1.28)\) and 44 (22%) female online students \((M = 1.11, SD = 1.15)\).
1.39). There were 53 male on-ground students (M = .94, SD = 1.35) and 21 (10%) male online students (M = 1.14, SD = 1.62).

**Results.** Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was not significant (p = .28); therefore, variance was assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on the final grade in the ‘male’ and ‘female’ condition. There was a not significant effect of course delivery on the final grade at the (p < .05) level for the two conditions [F(3, 199) = .20, p = .90]. No post hoc tests were required.

Table 4.29. Final Grade According to Gender in English Composition I

<table>
<thead>
<tr>
<th>Gender</th>
<th>On-ground</th>
<th></th>
<th></th>
<th>Online</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Female</td>
<td>85</td>
<td>0.99</td>
<td>1.28</td>
<td>44</td>
<td>1.11</td>
<td>1.39</td>
</tr>
<tr>
<td>Male</td>
<td>53</td>
<td>0.94</td>
<td>1.35</td>
<td>21</td>
<td>1.14</td>
<td>1.62</td>
</tr>
</tbody>
</table>

**ENGL 101 Final Grade Race**

**Descriptive Statistics.** There were a total of 196 students’ participants who were classified as either minority or majority for final grade comparison in the on-ground and online mode of delivery in English Composition I. There were 72 (37%) majority students on-ground (M = 1.14, SD = 1.39) and 34 (17%) majority students online (M = 1.50, SD = 1.69). There were 61 (31%) minority on-ground students (M = .77, SD =1.18) and 29 (18%) minority online students (M = .72, SD = 1.03).

**Results.** Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-Howell post hoc test was performed in which variances are not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course...
delivery on final grade in the ‘majority’ and ‘minority’ condition. There was a significant
effect of course delivery on the final grade at the (p = .00) level for the two conditions
[F(3, 192) 2.82, p = .04]. Post hoc comparisons using the Games-Howell indicated no
significant difference.

Table 4.30. Final Grade According to Race English Composition I

<table>
<thead>
<tr>
<th>Race</th>
<th>On-ground</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Majority</td>
<td>72</td>
<td>1.14</td>
</tr>
<tr>
<td>Minority</td>
<td>61</td>
<td>0.77</td>
</tr>
</tbody>
</table>

ENGL 101 Final Grade Age

**Descriptive Statistics.** There were a total of 203 student participants who were
classified as either traditional or non-traditional students, in which effectiveness was
evaluated in on-ground compared to online courses in English Composition I. There were
96 (47%) traditional students on-ground (M = .76, SD = 1.16) and 29 (14%) traditional
students online (M = .97, SD = 1.38). There were 42 (21%) non-traditional on-ground
students (M = 1.45, SD = 1.49) and 36 (18%) non-traditional online students (M = 1.25,
SD = 1.52).

**Results.** Homogeneity of variance assumptions were assessed using the Levene
Test for Homogeneity of Variance, in which was significant (p = .01); therefore, the
Games-Howell post hoc test was performed, in which variances are not assumed equal.
A one-way between subjects ANOVA was conducted to compare the effect of course
delivery on final grade in the ‘traditional’ and ‘non-traditional’ condition. There was a
significant effect of course delivery on the final grade at the (p < .05) level for the two
conditions [F(3, 99) = 3.01, p = .03].
Post hoc comparisons using the Games-Howell test indicated that the mean score for final grade of traditional students in on-ground courses (M = .76, SD = 1.16) were significantly different than non-traditional students on-ground (M = 1.45, SD = 1.49).

Table 4.31. Final Grade According to Age in English Composition I

<table>
<thead>
<tr>
<th>Age</th>
<th>On-ground</th>
<th></th>
<th></th>
<th>Online</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Traditional</td>
<td>96</td>
<td>.76a</td>
<td>1.16</td>
<td>29</td>
<td>0.97</td>
<td>1.38</td>
</tr>
<tr>
<td>Non-traditional</td>
<td>42</td>
<td>1.45a</td>
<td>1.49</td>
<td>36</td>
<td>1.25</td>
<td>1.52</td>
</tr>
</tbody>
</table>

Note. Means with differing subscripts are significantly different at the p < .05 based on the Games-Howell post hoc paired comparisons.

**CSCI 101 Final Grade Gender**

**Descriptive Statistics.** There were a total of 248 student participants for the final grade effectiveness comparison of male and female students taking courses delivered on-ground and online in Introduction to Computer Science. There were 58 (23%) female on-ground students (M = 1.34, SD = 1.60) and 89 (36%) female online students (M = 1.07, SD = 1.53). There were 48 (19%) male on-ground students (M = 1.71, SD = 1.54) and 53 (21%) male online students (M = 1.04, SD = 1.49).

**Results.** Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was not significant (p = .50); therefore, variance was assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on the final grade in the ‘male’ and ‘female’ condition. There was a not significant effect of course delivery on the final grade at the (p
< .05) level for the two conditions [F(3, 244 = .1.24, p = ..08]. No post hoc tests were required as indicated in Table 4.32.

**CSCI 101 Final Grade Race**

**Descriptive Statistics.** There were a total of 242 students’ participants who were classified as either minority or majority for final grade comparison in the on-ground and online mode of delivery in Introduction to Computer Science. There were 45 (19%) majority students on-ground (M = 1.82, SD = 1.68) and 62 (26%) majority students online (M = 1.42, SD = 1.69). There were 59 (12%) minority on-ground students (M = 1.22, SD =1.45) and 76 (31%) minority online students (M = .75, SD = 1.31).

**Results.** Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-Howell post hoc test was performed in which variances are not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on final grade in the ‘majority’ and ‘minority’ condition. There was a significant effect of course delivery on final grade at the (p = .00) level for the two conditions [F(3, 238) 5.14, p = .00]. Post hoc comparisons using the Games-Howell indicated that majority students on-ground (M = 1.82, SD = 1.68) were significantly different than minority students online (M = .75, SD = 1.31).

**Table 4.33. Final Grade According to Race Intro to Computer Science**

<table>
<thead>
<tr>
<th>Race</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Majority</td>
<td>45</td>
<td>1.82</td>
<td>1.68</td>
<td>62</td>
</tr>
<tr>
<td>Minority</td>
<td>59</td>
<td>1.22</td>
<td>1.45</td>
<td>76</td>
</tr>
</tbody>
</table>

Note. Means with differing subscripts are significantly different at the p < .05 based on the Games-Howell post hoc paired comparisons.
CSCI 101 Final Grade Age

**Descriptive Statistics.** There were a total of 250 student participants who were classified as either traditional or non-traditional students, in which effectiveness was evaluated in on-ground compared to online courses in Financial Accounting I. There were 57 traditional students on-ground (M = 1.46, SD = 1.58) and 77 traditional students online (M = .81, SD = 1.30). There were 49 non-traditional on-ground students (M = 1.57, SD = 1.58) and 67 non-traditional online students (M = 1.34, SD = 1.68).

**Results.** Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-Howell post hoc test was performed, in which variances are not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course delivery on final grade in the ‘traditional’ and ‘non-traditional’ condition. There was a significant effect of course delivery on the final grade at the (p < .05) level for the two conditions \[F(3, 246) = 3.33, p = .02\].

Post hoc comparisons using the Games-Howell indicated that the mean score for final grade of non-traditional students in on-ground courses (M = 1.57, SD = 1.58) was significantly different than traditional students online (M = 1.46, SD = 1.58).

Table 4.34. Final Grade According to Age in Intro to Computer Science

<table>
<thead>
<tr>
<th>Age</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Traditional</td>
<td>57</td>
<td>1.46</td>
<td>1.58</td>
<td>77</td>
</tr>
<tr>
<td>Non-traditional</td>
<td>49</td>
<td>1.57</td>
<td>1.58</td>
<td>67</td>
</tr>
</tbody>
</table>

*Note. Means with differing subscripts are significantly different at the p < .05 based on the Games-Howell post hoc paired comparisons.*
Student Perceptions Overall

Descriptive Statistics

There were a total of 176 student participants to evaluate the effectiveness of on-ground courses in comparison to online courses. Which included 86 (49%) on-ground students participants and 90 (51%) online participants. Student perception of faculty overall was assessed according to instructional design on-ground (M = 4.01, SD = 1.09) and online (M = 4.19, SD = .96), instructor attitude on-ground (M = 4.07, SD = 1.04) and online (M = 4.24, SD = .91), instructor support on-ground (M =3.94, SD = 1.12) and online (M = 4.12, SD = 1.01), and instructor expertise (M = 4.06, SD = 1.03) and online (M = 4.15, SD = .99), as indicated in Table 4.36.

Table 4.35. Descriptive Statistics for Courses Delivered Online Compared to On-ground from Students Rating of Faculty in Instructional Design, Attitude, Support and Expertise

<table>
<thead>
<tr>
<th>Scales</th>
<th>Course Mode</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional Design</td>
<td>On-ground</td>
<td>86</td>
<td>4.01</td>
<td>1.09</td>
</tr>
<tr>
<td></td>
<td>Online</td>
<td>90</td>
<td>4.19</td>
<td>0.96</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>176</td>
<td>4.10</td>
<td>1.03</td>
</tr>
<tr>
<td>Instructor Attitude</td>
<td>On-ground</td>
<td>86</td>
<td>4.07</td>
<td>1.04</td>
</tr>
<tr>
<td></td>
<td>Online</td>
<td>90</td>
<td>4.24</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>176</td>
<td>4.16</td>
<td>0.98</td>
</tr>
<tr>
<td>Instructor Support</td>
<td>On-ground</td>
<td>86</td>
<td>3.94</td>
<td>1.12</td>
</tr>
<tr>
<td></td>
<td>Online</td>
<td>90</td>
<td>4.12</td>
<td>1.01</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>176</td>
<td>4.03</td>
<td>1.07</td>
</tr>
<tr>
<td>Instructor Expertise</td>
<td>On-ground</td>
<td>86</td>
<td>4.06</td>
<td>1.03</td>
</tr>
<tr>
<td></td>
<td>Online</td>
<td>90</td>
<td>4.15</td>
<td>0.96</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>176</td>
<td>4.11</td>
<td>1.01</td>
</tr>
</tbody>
</table>

Results. Homogeneity of variance assumptions were assessed using The Levene Test for Homogeneity of Variance, in which the results determined that the scaled dependent variables of instructional design (p = .37), instructor attitude (p = .20),
instructor support (p = .37) and instructor expertise (p = .63) have approximately equal variance or variability within their group.

A one-way between subjects ANOVA was conducted to compare the effect of course mode delivery, on-ground and online, on student perception of faculty in instructional design, instructor attitude, instructor support and instructor expertise. There was not a significant effect of course delivery according to student responses on the Student Rating of Faculty survey for instructional design [F(1, 174) = 1.25, p = .27], instructor attitude [F(1, 174) = 1.40, p = .24], instructor support [F(1, 174) = 1.36, p = .25], and instructor expertise [F(1, 174) = .37 at the p < .05 level, as shown on Table 4.36.

Table 4.36. Student Perception of Faculty in On-ground Courses Compared to Online based in Instructional Design, Instructor Attitude, Instructor Support and Instructor Expertise

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Instructional Design</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>1.31</td>
<td>1</td>
<td>1.31</td>
<td>1.25</td>
</tr>
<tr>
<td>Within Groups</td>
<td>183.04</td>
<td>174</td>
<td>1.05</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>184.35</td>
<td>175</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Instructor Attitude</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>1.34</td>
<td>1</td>
<td>1.34</td>
<td>1.40</td>
</tr>
<tr>
<td>Within Groups</td>
<td>166.44</td>
<td>174</td>
<td>0.96</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>167.80</td>
<td>175</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Instructor Support</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>1.54</td>
<td>1</td>
<td>1.54</td>
<td>1.36</td>
</tr>
<tr>
<td>Within Groups</td>
<td>197.59</td>
<td>174</td>
<td>1.14</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>199.13</td>
<td>175</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Instructor Expertise</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>0.38</td>
<td>1</td>
<td>0.38</td>
<td>0.37</td>
</tr>
<tr>
<td>Within Groups</td>
<td>176.89</td>
<td>174</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>177.27</td>
<td>175</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Student Perception of Instructional Design

Descriptive Statistics

Student perception of faculty instructional design was assessed according to instructional design in Financial Accounting I on-ground (N = 16, M = 4.42, SD = .72) and Financial Accounting I online (N = 25, M = 4.66, SD = .51), Financial Accounting II on-ground (N = 20, M = 4.81, SD = .30) and Financial Accounting II online (N = 17, M = 4.18, SD = 1.06), English Composition I on-ground students (N = 29, M = 3.44, SD = 1.20) and English Composition I online (N = 14, M = 4.16, SD = 1.25), and Introduction to Computer Science on-ground (N = 21, M = 3.74, SD = 1.10) and Introduction to Computer Science online (N = 34, M = 3.85, SD = .93).

Results

Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-Howell post hoc test was performed, in which variances are not assumed equal. A one-way between subjects ANOVA was conducted to compare the effect of course mode delivery, on-ground and online, on student perception of faculty in instructional design and there was a significant effect at the (p < .05) level for the two conditions [F(7, 168) = 6.10, p = .00]. But, with post hoc comparisons using the Games-Howell test it was determined that there was no significant difference in the courses that were delivered by the same instructor in both modes of delivery. For example, there was a significant difference between Financial Accounting II on-ground (N = 20, M = 4.81, SD = .30) and English Composition I on-ground (N = 29, M = 3.44, SD = 1.20) and Introduction to Computer Science on-ground (N = 21, M = 3.74, SD = 1.10), but there was no significant
difference between Financial Accounting II on-ground (N = 20, M = 4.81, SD = .30) and Financial Accounting II online. English Composition I on-ground (N = 29, M = 3.44, SD = 1.20) was also significantly different than Financial Accounting I on-ground (N = 16, M = 4.42, SD = .72), but not significantly different than its counterpart, English Composition online. Introduction to Computer Science on-ground (N = 21, M = 3.74, SD = 1.10) was significantly different than Financial Accounting I online (N = 25, M = 4.66, SD = .51), although it was not significantly different than Introduction to Computer Science online (N = 34, M = 3.85, SD = .93).

Table 4.37. Student Perception of Instructional Design in On-ground Compared to Online Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>CSCI 101, Intro to Computer Science</td>
<td>21</td>
<td>3.74b</td>
<td>1.10</td>
<td>34</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting I</td>
<td>16</td>
<td>4.42a</td>
<td>0.72</td>
<td>25</td>
</tr>
<tr>
<td>ENGL 101, English Composition I</td>
<td>29</td>
<td>3.44b</td>
<td>1.20</td>
<td>14</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting II</td>
<td>20</td>
<td>4.81a</td>
<td>0.30</td>
<td>17</td>
</tr>
</tbody>
</table>

Note. Means with differing subscripts are significantly different at the p < .05 based on the Games-Howell post hoc paired comparisons.

**Student Perception of Instructor Attitude**

**Descriptive Statistics**

Student perception of faculty instructional attitude was assessed according to instructional design in Financial Accounting I on-ground (N = 16, M = 4.44, SD = .69) and Financial Accounting I online (N = 25, M = 4.68, SD = .50), Financial Accounting II on-ground (N = 20, M = 4.85, SD = .32) and Financial Accounting II online (N = 17, M = 4.26, SD = 1.00), English Composition I on-ground students (N = 29, M = 3.45, SD = 1.25) and English Composition I online (N = 14, M = 4.07, SD = 1.26), and Introduction
to Computer Science on-ground (N = 21, M = 3.90, SD = .82) and Introduction to Computer Science online (N = 34, M = 3.99, SD = .86).

Results
Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-Howell post hoc test was performed, in which variances are not assumed equal.

A one-way between subjects ANOVA was conducted to compare the effect of course mode delivery, on-ground and online, on student perception of faculty in instructional design and there was a significant effect at the (p < .05) level for the two conditions [F(7, 168) = 6.30, p = .00]. But, with post hoc comparisons using the Games-Howell test, it was determined that there was no significant difference between courses that were delivered by the same instructor in both modes of delivery, but there was a significant difference between courses across disciplines or types of courses. Financial Accounting II on-ground (N = 20, M = 4.85, SD = .32) was significantly different than English Composition I on-ground (N = 29, M = 3.45, SD = 1.25) and Introduction to Computer Science on-ground (N = 21, M = 3.90, SD = .82) and Introduction to Computer Science online (N = 34, M = 3.99, SD = .86) while there was not a significant difference between its online counterpart, Financial Accounting II online (N = 17, M = 4.26, SD = 1.00). English Composition I on-ground (N = 29, M = 3.45, SD = 1.25) was not significantly different between English Composition I online (N = 14, M = 4.07, SD = 1.26) but it was significantly different from Financial Accounting I on-ground (N = 16, M = 4.44, SD = .69) and online (N = 25, M = 4.68, SD = .50). Introduction to Computer Science on-ground (N = 21, M = 3.90, SD = .82) was not significantly different from Introduction to Computer Science online (N = 34, M = 3.99, SD = .86) but was
significantly different from Financial Accounting I online (N = 25, M = 4.68, SD = .50).

Financial Accounting I on-ground (N = 16, M = 4.44, SD = .69) was not significantly
different than Financial Accounting I online (N = 25, M = 4.68, SD = .50).

Table 4.38. Student Perception of Instructor Attitude in On-ground Compared to Online Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>CSCI 101, Intro to Computer Science</td>
<td>21</td>
<td>3.90&lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.82</td>
<td>34</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting I</td>
<td>16</td>
<td>4.44&lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.69</td>
<td>25</td>
</tr>
<tr>
<td>ENGL 101, English Composition I</td>
<td>29</td>
<td>3.45&lt;sub&gt;b&lt;/sub&gt;</td>
<td>1.25</td>
<td>14</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting II</td>
<td>20</td>
<td>4.85&lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.32</td>
<td>17</td>
</tr>
</tbody>
</table>

Note. Means with differing subscripts are significantly different at the p < .05 based on the Games-Howell post hoc paired comparisons.

Student Perception of Instructor Support

Descriptive Statistics

Student perception of faculty instructional attitude was assessed according to
instructional design in Financial Accounting I on-ground (N = 16, M = 4.35, SD = .95)
and Financial Accounting I online (N = 25, M = 4.65, SD = .48), Financial Accounting II
on-ground (N = 20, M = 4.70, SD = .45) and Financial Accounting II online (N = 17, M =
4.09, SD = 1.10), English Composition I on-ground students (N = 29, M = 3.73, SD =
1.01) and English Composition I online (N = 14, M = 3.99, SD = 1.31), and Introduction
to Computer Science on-ground (N = 21, M = 3.73, SD = 1.01) and Introduction to
Computer Science online (N = 34, M = 3.81, SD = 1.00).

Results

Homogeneity of variance assumptions were assessed using the Levene Test for
Homogeneity of Variance, in which was significant (p = .00); therefore, the Games-
Howell post hoc test was performed, in which variances are not assumed equal.
A one-way between subjects ANOVA was conducted to compare the effect of course mode delivery, on-ground and online, on student perception of faculty in instructional design and there was a significant effect at the \((p < .05)\) level for the two conditions \([F(7, 168) = 5.64, p = .00]\). But, with post hoc comparisons using the Games-Howell test it was determined that there was no significant difference in the courses that were delivered by the same instructor in both modes of delivery. Financial Accounting II on-ground (\(N = 20, M = 4.70, SD = .45\)) was significantly different than English Composition I on-ground (\(N = 29, M = 3.73, SD = 1.01\)), Introduction to Computer Science on-ground (\(N = 21, M = 3.73, SD = 1.01\)), and Introduction to Computer Science online (\(N = 34, M = 3.81, SD = 1.00\)). English Composition I on-ground (\(N = 29, M = 3.73, SD = 1.01\)) was significantly different than Financial Accounting I on-ground (\(N = 16, M = 4.35, SD = .95\)) and Financial Accounting I online (\(N = 25, M = 4.65, SD = .48\)). Financial Accounting I online (\(N = 25, M = 4.65, SD = .48\)) was significantly different than Introduction to Computer Science online (\(N = 34, M = 3.81, SD = 1.00\)).

Table 4.39. Student Perception of Instructor Support in On-ground Compared to Online Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>On-ground</th>
<th></th>
<th>Online</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>Mean</td>
<td>SD</td>
<td>(N)</td>
</tr>
<tr>
<td>CSCI 101, Intro to Computer Science</td>
<td>21</td>
<td>3.73(\text{b})</td>
<td>1.01</td>
<td>34</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting I</td>
<td>16</td>
<td>4.35(\text{a})</td>
<td>0.95</td>
<td>25</td>
</tr>
<tr>
<td>ENGL 101, English Composition I</td>
<td>29</td>
<td>3.33(\text{b})</td>
<td>1.23</td>
<td>14</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting II</td>
<td>20</td>
<td>4.70(\text{a})</td>
<td>0.45</td>
<td>17</td>
</tr>
</tbody>
</table>

Note. Means with differing subscripts are significantly different at the \(p < .05\) based on the Games-Howell post hoc paired comparisons.
Student Perception of Instructor Expertise

Descriptive Statistics

Student perception of faculty instructional expertise was assessed according to instructional design in Financial Accounting I on-ground (N = 16, M = 4.41, SD = .80) and Financial Accounting I online (N = 25, M = 4.67, SD = .46), Financial Accounting II on-ground (N = 20, M = 4.83, SD = .29) and Financial Accounting II online (N = 17, M = 4.12, SD = 1.07), English Composition I on-ground students (N = 29, M = 3.52, SD = 1.13) and English Composition I online (N = 14, M = 3.97, SD = 1.34), and Introduction to Computer Science on-ground (N = 21, M = 3.80, SD = .99) and Introduction to Computer Science online (N = 34, M = 3.86, SD = .95), as indicated in Table 4.10.

Results

Homogeneity of variance assumptions were assessed using the Levene Test for Homogeneity of Variance, in which was significant (p = .00); therefore the Games-Howell post hoc test was performed in which variances are not assumed equal.

A one-way between subjects ANOVA was conducted to compare the effect of course mode delivery, on-ground and online, on student perception of faculty in instructional design and there was a significant effect at the (p < .05) level for the two conditions [F(7, 168) = 5.70, p = .00]. But, with post hoc comparisons using the Games-Howell test it was determined that there was no significant difference in the courses that were delivered by the same instructor in both modes of delivery. Financial Accounting II on-ground (N = 20, M = 4.83, SD = .29) was significantly different than English Composition I on-ground (N = 29, M = 3.52, SD = 1.13), Introduction to Computer Science on-ground (N = 21, M = 3.80, SD = .99), and Introduction to Computer Science
online (N = 34, M = 3.86, SD = .95). English Composition I on-ground (N = 29, M = 3.52, SD = 1.13) was significantly different than Financial Accounting I on-ground (N = 16, M = 4.41, SD = .80) and Financial Accounting I online (N = 25, M = 4.67, SD = .46). Financial Accounting I online (N = 25, M = 4.67, SD = .46) was significantly different than Introduction to Computer Science online (N = 34, M = 3.86, SD = .95).

Table 4.40. Student Perception of Instructor Expertise in On-ground Compared to Online Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>On-ground</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>CSCI 101, Intro to Computer Science</td>
<td>21</td>
<td>3.80b</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting I</td>
<td>16</td>
<td>4.41a</td>
</tr>
<tr>
<td>ENGL 101, English Composition I</td>
<td>29</td>
<td>3.52b</td>
</tr>
<tr>
<td>ACCT 201, Financial Accounting II</td>
<td>20</td>
<td>4.83a</td>
</tr>
</tbody>
</table>

Note. Means with differing subscripts are significantly different at the p < .05 based on the Games-Howell post hoc paired comparisons.
CHAPTER FIVE: CONCLUSIONS, DISCUSSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Conclusion

The goal of this chapter is to summarize the significant findings as reported in the Results Chapter. While this study sought to compare effectiveness components of on-ground and online courses by controlling for instructor, according to attrition, final grades and student perception, the underlying factors of student gender, race and age were important considerations for analysis, providing much insight and confirming the current research in the field of study.

Attrition

The data supports the fact that online courses are popular overall with students; more students are enrolling in online courses, but, unfortunately, students enrolled in online courses in this study are not as successful as the students enrolled in on-ground courses. A contributing factor to the popularity of online courses in community colleges, as in setting of this research, is the fact that there is no on-campus housing; all students live off campus. The current research indicates that students who live off campus are more likely to take online courses because they can save money on their commute to school and do not have to deal with parking on campus (Howsen and Lile, 2008). Additionally, the higher rate of online non-completers could be due to community college students are usually at a disadvantage. These students in general are subject to more characteristics that negatively impact their success in college, including scoring lower in high school, delaying college after high school, attending part-time, and coming from families who are in the lower socio-economic status (Bailey, Jenkins & Leinbach (2005).
Furthermore, the findings suggest that students successfully complete some courses more than others. For example, Financial Accounting I on-ground attrition was lower than the rate of attrition for the on-ground course, while none of the other courses in the study had significant results. Even though online students were more likely to be unsuccessful completing the online Financial Accounting I course than the on-ground course, students in both sections praised the instructor. An online student explained, “the online format is very convenient for the working adult.” The instructor made the course material and time limits all within reason.” Likewise, an on-ground student explained that the instructor “does the best job ever.”

This leads to the idea that the higher rate of attrition that is documented in online courses can be attributed to the fact that age is positively correlated with a student taking online courses. The older a person is, the more like they will take an online course (Carr, 2000). Therefore, just as students in both modes of the Financial Accounting I course praised the instructor, the fact that distance education students are often older, thus having more reason not to successfully complete a course must be considered.

Moreover, even though there were more traditional student participants overall, the findings of attrition according to age posit that non-traditional students on-ground more successfully completed their coursework than younger, more traditional students online and on-ground, which reaffirms the research that suggest that older students have more human capital or more invested in themselves and generally perform better than traditional students.

Gender and race were factors in term of attrition. Overall, there were more female participants in this study, but according to percentage, more females enrolled in online
courses, which is consistent with the current literature that online courses are more popular with women (Jaggers and Xu, 2010) and they tend to benefit most in the online or technology enhanced environment (Argawal and Day, 2000). Females and males in on-ground courses had a lower rate of attrition than males in online courses. Furthermore, the findings also support the literature that men are less likely to enroll in an online course than females (Howsen and Lile, 2008).

**Final Grades**

Overall, final grades between courses delivered on-ground and online courses were significantly different, but across disciplines. For example, the post hoc comparison indicated that Financial Accounting I on-ground was not significantly different than its online counterpart, but it was significantly different than English Composition I on-ground. Moreover, none of the courses that were taught by the same instructor in both modes of delivery were statistically significant, but there were findings that formulate trends, such as the highest mean score for final grade was in Financial Accounting II on-ground, while the lowest was in English Composition I on-ground and Introduction to Computer Science online. All on-ground courses out-performed their online counterpart in terms of mean final grade except for English Composition I, in which the student mean final grade online was higher. The fact that English Composition I online outperformed its on-ground counterpart lends to the discussion of whether some courses are better suited for online than others.

Gender was not statistically significant in terms of final grades, but some important trends were noted according to the data. Male on-ground students performed
better than female on-ground students. Female online students performed better than male online students, who had the lowest mean score.

In terms of race, there were statistically significant results in terms of final grade indicating that majority students on-ground out-perform minority students online, and majority students online also out-perform minority students online. Minority students online performed worse than any other group, including minority students on-ground. The current research indicates that minority students are more likely to enroll in an on-ground course than an online course (Jaggers and Xu, 2010), but in this research study, there were a high percentage of minority students enrolled in the online courses.

Furthermore, non-traditional students performed better overall in terms of final grades. Non-traditional students on-ground performed better than non-traditional students online, but non-traditional students online performed better than both traditional students on-ground and traditional students online. Traditional online students had the lowest mean score for final grade.

**Within Course Comparison**

Within course analysis was performed to determine which of the courses had significant findings within the course for attrition, age and gender. Financial Accounting I was not significant for final grade or attrition based upon gender, race or age. Females in on-ground Accounting II were less likely to be unsuccessful at completing their coursework than male students in Financial Accounting II. Males in the on-ground version of Financial Accounting II more successfully completed the course than males in the online course. Both of these findings are consistent with the between course findings. Overall, the students in this study perform better in the on-ground courses.
Financial Accounting II majority students in on-ground courses were more likely to complete their coursework compared to minority students online. Furthermore, minority students on-ground were more likely to be successful than minority students online in Financial Accounting II.

Financial Accounting II traditional students on-ground more successfully completed their coursework than those who were enrolled in the online courses. Non-traditional students on-ground were less likely to be unsuccessful at completing their coursework as compared to traditional students online.

Introduction to Computer Science female online students were more likely than male students on-ground to unsuccessfully complete their coursework. This within course comparison is interesting because the literature supports females having a better experience with an online course. But, this finding is consistent with the finding in this study that online courses are popular with the students in this study, but they are less likely to be successful in an online course.

Majority students in on-ground Introduction to Computer Science were less likely to be unsuccessful at completing their coursework than minority students online, just like Financial Accounting II. Traditional students in Introduction to Computer Science online were more likely to be a non-completer than non-traditional students in Introduction to Computer Science on-ground, in which is consistent with the overall analysis of attrition for this study because non-traditional students are less likely overall all to be unsuccessful. These students are older, and oftentimes they have a higher GPA and more educational background than traditional students (Diaz, 200a; Gibson and Graff, 1992).
In terms of final grade, Financial Accounting II majority on-ground students scored higher than minority online students. But, minority on-ground students had a higher final grade than minority online. Minority online students performed the worst in terms of mean final grade. In Introduction to Computer Science, majority students in the on-ground courses received higher final grades than the minority students online, too.

Again, non-traditional on-ground students performed better in terms of final grade than traditional students on-ground in Financial Accounting II and Introduction to Computer Science. Traditional students in Financial Accounting II on-ground performed better than those taking the online course in Financial Accounting II. In English Composition I, the final grades of non-traditional students on-ground were better than traditional students on-ground.

In summary, on-ground students are most successfully completing their coursework according to this study, in which the literature documents that there is a higher rate of attrition for online courses, but this may be attributed to the fact that the students who take online courses have more reasons to drop the course or they have more going on in their life (Diaz, 2002). Furthermore, minorities perform worse online than on-ground. Females are more likely to be unsuccessful at an on-ground course overall, but females are more likely to be unsuccessful at completing their coursework online in Introduction to Computer Science. While traditional students generally are less successful than non-traditional students, in Financial Accounting II, traditional students in the on-ground course are considerably more successful than the in the online course.
**Student Perception**

While there were no significant findings according to student perception of the faculty between courses that were delivered by the same instructor in both modes of delivery, there were important trends noted concerning the specific courses and student perception. There were also significant findings across courses. Financial Accounting II and I were considered more favorable in both sections, on-ground and online, according to instructional design, instructor attitude, instructor support, and instructor expertise. Financial Accounting I, in general was perceived by students as the most favorable of the courses included in this study, while the English Composition I on-ground was perceived by students least favorable.

Student perception of instructional design was significantly different, favoring Financial Accounting II on-ground over English Composition I on-ground and Introduction to Computer Science on-ground. Students also perceived the instructional design of Financial Accounting I on-ground more favorable than English Composition I on-ground. Introduction to Computer Science on-ground was perceived less favorable than Financial Accounting I online.

Student perception of the instructor’s attitude was significantly different between most of the same courses as instructional design. Student perception of Financial Accounting II on-ground instructor attitude was far superior than English Composition I on-ground and Introduction to Computer Science on-ground and online. Students perceived that Financial Accounting I on-ground instructor attitude was superior than Introduction to Computer Science I on-ground.
Likewise, students perceived Financial Accounting II on-ground as being most supportive, while the student’s perceived the least supportive course as English Composition I on-ground. A student from Accounting II on-ground explained the instructor, “really seems to care about the success of the students.

In terms of the student’s perception of the instructor, English Composition I, again was the lowest, while Financial Accounting II had the highest mean score, but, instructor expertise received the lowest scores for all courses when compared to instructional design, instructor attitude, and instructor support. In terms of expertise, a student from Accounting II on-ground wrote that the instructor “does an excellent job of taking material from the book, and condensing the material in an easy to understand format.”

Discussion

This study sought to explore alternative course delivery methods with the overarching hope to add to the body of knowledge with empirical data, not only evaluating distance education in the form of online courses as an effective alternative to traditional education, but also, to provide meaningful data concerning which students, in terms of gender, race and age are the most successful when taking an online compared to an on-ground course. While this effort is important in higher education as a whole, community colleges can benefit most because smaller, public and community colleges have not historically invested in distance education (Janes, 2003) even though community colleges have the highest enrollment growth rate and account for half of the higher education enrollment over the last five years (Allen and Searman, 2007).
In addition, educational research is deemed lacking credibility in part because there is a failure to employ credible research models to relate research into practice (Burkhardt & Schoenfield, 2003). Empirical research is important because faculty, along with other educational stakeholders have a desire to support online course delivery if the needs of students are met. Moreover, instructors are more likely to use distance education if they believe that the effectiveness is comparable to face-to-face delivered courses (Johnsrud and Harada, 2005), which supports the need for distance education effectiveness studies leading to research into practice.

Furthermore, difficulties with meeting the facility needs of face-to-face-courses in higher education have created a need to evaluate alternate education programs, such as distance education (DE). Higher education institutions lack the classroom space and resources needed to meet the demands of the growing population of traditional and adult students. There is an increasing demand on higher education institutions to make cost reductions in any manner possible (Bartley & Golek, 2004). A solution to the physical facilities and financial problems higher education has with dealing with the predicted economic and enrollment conditions can be found in distance education (Janes, 2003). This research study confirmed that even though there is a higher rate of attrition for online courses, both modes of delivery are effectively meeting the needs to students, but not without considerations such as age and gender.

Older, non-traditional students are out-performing traditional students in both online and on-ground courses. Educational stakeholders not only need to know that both modes of delivery are comparable, but they also need to know who are taking these courses because education is really a business. Stakeholders need to know which courses
are best suited for non-traditional students or in what ways can they accommodate these older students to increase their successful learning experience.

On the other hand, traditional students are performing poorly in both modes of delivery, but worse in the online environment than on-ground. Students between 18-24 years old or traditional students are enrolling more often in online courses, but their rate of attrition is high and their mean final grade is low, indicating that online courses may not be a good match for some traditionally aged students. These students require assistance in determining which mode is best suited for their learning style because they are the largest population of students, and they should not have to wait until they become a non-traditional student to be more successful in the learning process. Many colleges and universities require students to be counseled before enrolling for their coursework; there should be more emphasis on the type of self-discipline, study habits, and technological knowledge that is required for taking an online course. Student counseling or advising can play an intricate role in student education concerning modes of delivery and the many requirements of students for each.

Furthermore, female students are more willing to enroll in an online course than males; therefore, courses that have been historically populated by women should be an important consideration when institutions are deciding which courses to offer. The trend of women favoring online courses can be attributed to the amount of women who are single parents and the amount of women who are entering the workforce. Even though there are many women who are working and going to school to become better educated, there are those women who have a spouse and are required to enter the workforce because of the economy. Nevertheless, just as businesses use market analysis for their
customers, educational systems must use the current research trend to move beyond the barriers of traditional education to ultimately increase the availability of learning to some students and confirm the effectiveness of online learning to others, including faculty and administration.

**Limitations of the Study**

There are distance education delivery mode and sample limitations for this study, which can influence the generalizability of the results. Online delivered distance education courses are explored in this study, in which Baton Rouge Community College uses Blackboard as the course management system (CMS) in an asynchronous environment; therefore, effectiveness components are limited to like distance education modes of delivery. Many colleges and universities are using open-source CMS and other non-Blackboard type systems. Since the college in this study uses Blackboard, then there are limitations because while there are functions of course management systems that is common, each course management system has certain functions or capabilities and this must be a consideration because the online courses in this study used Blackboard and its functionality.

Furthermore, the online course-type in this study presents limitations because it was delivered 99% online, asynchronously. Students were not required to come into the classroom and all materials were delivered online. There are other types of online courses, including those that are synchronous. Distance education covers many types of courses; this study explores only one.

In addition, since the setting of this study is a community college, there are limitations for the type of higher education institution. While this study can be insightful
for higher education institutions in general, community colleges have a unique population of students, as indicated by their admission requirement in comparison to four-year universities; therefore, these findings might be generalized best to like two-year institutions.

Sample limitations for this study are indicative from the aspect that there was a low response rate for the survey and survey respondents were anonymous. While all 771 student participants received the survey, their response was optional. Only 177 students responded to the survey, which was a 23 percent response rate. Students were emailed the survey before the end of the semester, regardless of whether they were in an online or on-ground class. In the past, the college would administer a paper survey to on-ground students. Perhaps the new method the college is using to deliver the survey allows every student to receive the survey by the same means in their student email account, but it possibly contributes to the low response, especially for on-ground courses.

Furthermore, another aspect of the sample limitation is that the students’ response on the survey was anonymous; therefore, age, gender, and race could not be explored when evaluating the students’ perceptions of online courses in comparison to on-ground courses,

Suggestions for Future Research

More research on course type is warranted to determine if there are courses that are better delivered in one mode of delivery than the other. Evaluating types of courses is important in not just community colleges, but in higher education as a whole. Since there are basic courses that are required in every major, and unusually have a large amount of
students to enroll, every effort should be made to determine if these courses could be
more easily accessible to students online and financially efficient for the institution.

In addition, more research is needed for student attrition in online courses to
determine more details behind the non-completers or those who withdrew from the
course, made a zero or F. This type of research warrants a mixed method design whereby
the quantitative data can be further analyzed according to interviews.
APPENDIX A: INSTITUTIONAL REVIEW BOARD (IRB) FORM

Application for Exemption from Institutional Oversight

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research projects using human subjects, as subjects, or samples, or data obtained from human subjects, directly or indirectly, with or without their consent, must be approved or exempted in advance by the LSU IRB. This Form helps the IRB determine if a project may be exempted, and is used to request an exemption.

— Applicant: Please fill out the application in its entirety and include the completed application as well as parts A-E, listed below, when submitting to the IRB. Once the application is completed, please submit two copies of the completed application to the IRB Office or to a member of the Human Subjects Screening Committee. Members of this committee can be found at http://www.lsu.edu/irb/screeningmembers.shtml

— A Complete Application Includes All of the Following:
   (A) Two copies of this completed form and two copies of part B and C.
   (B) A brief project description (adequate to evaluate risk to subjects and to explain your responses to Parts 1&2)
   (C) Copies of all instruments to be used.
   (D) If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.
   (E) The consent form that you will use in the study (see part 3 for more information).
   (F) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless already on file with the IRB.

1) Principal Investigator:
   Name: [Redacted]
   Rank: [Redacted]
   Dept: [Redacted]
   Ph: [Redacted]

2) Co-Investigator(s): please include department, rank, phone, and e-mail for each

   DR. Keesa Arbuthnot
   Assistant/Associate Professor
   Educational, Theory, Policy and Practice
   225-578-0821
   arbuthnot@lsu.edu

3) Project Title:
   [Redacted]

4) Proposal? (yes or no)
   Yes [ ]
   No [x]
   If Yes, LSU Proposal Number [Redacted]

5) Subject pool (e.g. Psychology students)
   [Redacted]

6) PI Signature:
   [Redacted]
   Date: 12/9/11 (no per signatures)

**I certify my responses are accurate and complete. If the project scope or design is later changes, I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time the consent forms should be preserved in the Departmental Office.

Screening Committee Action: Exempted [ ] Not Exempted [x] Category/Paragraph [Redacted]

Reviewer: [Redacted] Signature: [Redacted] Date: 12/9/11
Course Name: Financial Accounting I
Course Number: ACCT 200

Lecture Hrs. 3  Lab Hrs. 0  Credit Hrs. 3

Course Description: Introduces basic accounting concepts and principles, accounting cycle, preparation of financial statements, general and special journals, and payroll accounting.

Prerequisites: Eligibility for college level math
Co-requisites: None

Suggested Enrollment Cap: 30

Learning Outcomes: Upon successful completion of this course, the student will be able to:

• Define accounting terms and concepts.
• Identify and perform the steps in the accounting cycle.
• Analyze bank account.
• Manage cash funds.
• Record and maintain payroll.
• Calculate and apply accounting methods.
• Identify and use special journals.
• Define the Statement of Cash Flows.

Assessment Measures: The student will be assessed and graded using some or all of the following assessment tools based upon each individual professor’s or instructor’s grading methods, scales, and rubrics, except where the assessment is performed by all sections of ACCT 200:

• Professor/instructor will administer exams and/or quizzes.
• Professor/instructor will assign homework and/or class work.
• Professor/instructor will use any other appropriate accounting or educational methods.
Standardized course surveys will be conducted by all ACCT 200 sections using BRCC’s Black Board web site.

Information to be included on the Instructors’ Course Syllabi:

- **Disability Statement:** Baton Rouge Community College seeks to meet the needs of its students in many ways. See the Office of Disability Services to receive suggestions for disability statements that should be included in each syllabus.

- **Grading:** The College grading policy should be included in the course syllabus. Any special practices should also go here. This should include the instructor’s and/or the department’s policy for make-up work. For example in a speech course, “Speeches not given on due date will receive no grade higher than a sixty” or “Make-up work will not be accepted after the last day of class.”

- **Attendance Policy:** Include the overall attendance policy of the college. Instructors may want to add additional information in individual syllabi to meet the needs of their courses.

- **General Policies:** Instructors’ policy on the use of things such as beepers and cell phones and/or hand held programmable calculators should be covered in this section.

- **Cheating and Plagiarism:** This must be included in all syllabi and should include the penalties for incidents in a given class. Students should have a clear idea of what constitutes cheating in a given course.

- **Safety Concerns:** In some programs this may be a major issue. For example, “No student will be allowed in the safety lab without safety glasses.” General statements such as, “Items that may be harmful to one’s self or others should not be brought to class.”

- **Library/ Learning Resources:** Since the development of the total person is part of our mission, assignments in the library and/or the Learning Resources Center should be included to assist students in enhancing skills and in using resources. Students should be encouraged to use the library for reading enjoyment as part of lifelong learning.

**Expanded Course Outline:**

I. **Accounting Elements**
   A. Define the process of accounting
   B. Recognize the users of accounting information
   C. Define and identify fundamental accounting equation and its accounts
   D. Define and identify revenue and expense accounts.
   E. Recognize chart of accounts
II. Accounting Cycle
   A. Record business transactions using fundamental accounting equation
   B. Use and record transactions using T account form (debit and credit sides)
   C. Record transactions using two-column general journal
   D. Post entries from general journal to general ledger
   E. Prepare trial balance
   F. Prepare financial statements: Income Statement, Statement of Owner’s Equity, and Balance Sheet
   G. Define a work sheet
   H. Journalize and post adjusting entries
   I. Journalize and post closing entries
   J. Prepare post-closing trial balance.

III. Bank Accounts and Cash Funds
   A. Reconcile a bank statement
   B. Record and journalize petty cash fund transactions
   C. Record and journalize change fund transactions

IV. Payroll
   A. Calculate total earnings and deductions for wages and salaries
   B. Journalize employees’ and employer’s payroll entries
   C. Journalize payment of deductions

V. Special Journals
   A. Record and post transactions in sales journal and accounts receivable ledger
   B. Record and post transactions in purchases journal and accounts payable ledger
   C. Record and post transactions in cash receipts and in cash payments journals
   D. Journalize sales, purchases, and returns and allowances in general journal
   E. Journalize cash receipts and cash payments in general journal

VI. Introduction to Accounting Methods and Statement of Cash Flows
   A. Calculate and journalize depreciation methods
   B. Calculate and journalize bad debt methods
   C. Calculate inventory methods
   D. Identify the Statement of Cash Flows
Course Name: **Financial Accounting II**  
Course Number: **ACCT 201**

**Lecture Hrs.** 3  
**Lab Hrs.** 0  
**Credit Hrs.** 3  

**Course Description:** Introduces balance sheet valuations, partnerships, corporations, stockholders’ equity, the statement of cash flows, and financial statement analysis.

**Prerequisites:** ACCT 200  
**Co-requisites:** None

**Suggested Enrollment Cap:** 30

**Learning Outcomes:** This course is a sequential following of ACCT 200. During this course, the student will expand upon the learning outcomes from ACCT 200. Upon successful completion of this course, the student will be able to:

- Define and journalize adjusting and closing entries.
- Prepare classified financial statements.
- Define reversing entries.
- Account for promissory notes.
- Define, calculate, and apply accounting methods.
- Define partnership and distribute net income/net loss to partners.
- Define corporation and record corporate income tax, stock, dividends, and bonds.
- Define Statement of Cash Flows and analyze cash flows.
- Explain comparative financial statements and compute analysis measures

**Assessment Measures:** The student will be assessed and graded using some or all of the following assessment tools based upon each individual professor’s or instructor’s grading methods, scales, and rubrics, except where the assessment is performed by all sections of ACCT 201:

- Professor/instructor will administer exams and/or quizzes.
- Professor/instructor will assign homework and/or class work.
- Professor/instructor will use any other appropriate accounting or educational methods.
- Standardized course surveys will be conducted by all ACCT 201 sections using BRCC’s Black Board web site.
Information to be included on the Instructors’ Course Syllabi:

- **Disability Statement:** Baton Rouge Community College seeks to meet the needs of its students in many ways. See the Office of Disability Services to receive suggestions for disability statements that should be included in each syllabus.

- **Grading:** The College grading policy should be included in the course syllabus. Any special practices should also go here. This should include the instructor's and/or the department's policy for make-up work. For example in a speech course, “Speeches not given on due date will receive no grade higher than a sixty” or “Make-up work will not be accepted after the last day of class.”

- **Attendance Policy:** Include the overall attendance policy of the college. Instructors may want to add additional information in individual syllabi to meet the needs of their courses.

- **General Policies:** Instructors’ policy on the use of things such as beepers and cell phones and/or hand held programmable calculators should be covered in this section.

- **Cheating and Plagiarism:** This must be included in all syllabi and should include the penalties for incidents in a given class. Students should have a clear idea of what constitutes cheating in a given course.

- **Safety Concerns:** In some programs this may be a major issue. For example, “No student will be allowed in the safety lab without safety glasses.” General statements such as, “Items that may be harmful to one’s self or others should not be brought to class.”

- **Library/ Learning Resources:** Since the development of the total person is part of our mission, assignments in the library and/or the Learning Resources Center should be included to assist students in enhancing skills and in using resources. Students should be encouraged to use the library for reading enjoyment as part of lifelong learning.

**Expanded Course Outline:**

I. Adjusting, Closing, and Reversing Entries
   A. Prepare and journalize adjusting entries for merchandising firm
   B. Prepare and journalize adjusting entry for unearned revenue
   C. Journalize closing entries for merchandising firm
   D. Determine which adjusting entries can be reversed

II. Classified Financial Statements
   A. Define and prepare a classified income statement for a merchandising firm
   B. Define and prepare a classified balance sheet
III. Account for Promissory Notes
   A. Define and calculate interest on promissory note
   B. Determine due dates and duration of promissory notes
   C. Prepare journal entries for maker (notes payable) of promissory notes
   D. Prepare journal entries for payee (notes receivable) of promissory notes
   E. Journalize adjustment for accrued interest on promissory notes

IV. Accounting Methods
   A. Define bad debts and the allowance method
   B. Calculate and journalize bad debt methods
   C. Journalize write off of bad debt
   D. Explain the effect of overstating or understating ending inventory
   E. Calculate ending inventory using inventory methods
   F. Define depreciation
   G. Calculate and journalize depreciation methods
   H. Differentiate between capital and revenue expenditures
   I. Prepare journal entries for disposing and sale of plant and equipment

V. Partnerships
   A. Define partnership and journalize initial investment
   B. Provide for division of net income/net loss and journalize

VI. Corporations
   A. Define corporation
   B. Journalize entries for issuance of par-value and no-par stock
   C. Journalize entries for sale of stock on subscription basis
   D. Journalize entries for corporate income tax
   E. Journalize entries for appropriation of retained earnings
   F. Journalize entries for cash and stock dividends
   G. Journalize transactions for bonds sold at premium or discount
   H. Journalize adjusting entries for bond amortization and accrued interest payable

VII. Statement of Cash Flows
   A. Describe the statement of cash flows, and define cash and cash equivalents
   B. State the purpose of the statement of cash flows
   C. Identify cash inflows and outflows as operating, investing, or financing activities
   D. Calculate amounts of cash flows for operating, investing, and financing activities

VIII. Comparative Financial Statements
   A. Define comparative financial statements using horizontal and vertical analysis
   B. Compute the components for comparative financial statements using horizontal and vertical analysis
   C. Compute working capital and ratios.
   D. Calculate equity per share, earnings per share, and price-earnings ratio
Course Name: Introduction to Computer Technology  
Course Number: CSCI 101

Lecture Hrs. 3  Lab Hrs. 0  Credit Hrs. 3

Course Description: Reviews computers and their applications in society (home, education, and industry). Introduces application software and its uses including, but not limited to, its uses in word processing, spreadsheets, databases, and multimedia.

Prerequisites: None  
Co-requisites: None

Suggested Enrollment Cap: 25

Learning Outcomes: Upon successful completion of this course, the student will be able to:

• Define basic parts of a computer as well as basic computer terminology and concepts;
• Define basic functions of a computer operating system;
• Know how to use basic functions of a computer operating system on a computer based assignment;
• Define key terms of a word processing software application;
• Know how to create, edit, and maintain a document using a word processing software application on a computer based assignment;
• Define key terms of an electronic spreadsheet software application;
• Know how to create, calculate, chart and format numeric data using an electronic spreadsheet software application;
• Define key terms of a database management software application;
• Know how to create and maintain a database and retrieve data from it on a computer based assignment;
• Define key terms of a presentation graphics software application; and
• Know how to create, edit, organize, and visually enhance a presentation on a computer based assignment.

General Education Learning Outcomes: This course supports the development of competency in the following areas. Students will:
• Think critically, collect evidence (statistics, examples, testimony) and make decisions based on the evidence, comprehend and analyze texts, and solve problems using methods of critical and scientific inquiry;
• Communicate effectively using standard written English; and
• Use computer technology to access, retrieve, process, and communicate information.

**Assessment Measures:** All learning outcomes will also be assessed using a combination of computer-based (hands-on) application examinations and/or project assignment work, and in-class written (non-computer based) examinations.

• A portion of the final exam will be a departmental;
• The student will prepare a presentation and give it in class; the presentation will be graded using a departmentally created rubric;
• Computer-based application lab assignments where students work independently are given as assignments;
• Instructor prepared written examinations; and
• Students will complete a survey about computer skills they acquired.

**Information to be included on the Instructors’ Course Syllabi:**

• **Disability Statement:** Baton Rouge Community College seeks to meet the needs of its students in many ways. See the Office of Disability Services to receive suggestions for disability statements that should be included in each syllabus.

• **Grading:** The College grading policy should be included in the course syllabus. Any special practices should also go here. This should include the instructor’s and/or the department’s policy for make-up work. For example in a speech course, “Speeches not given on due date will receive no grade higher than a sixty” or “Make-up work will not be accepted after the last day of class.”

• **Attendance Policy:** Include the overall attendance policy of the college. Instructors may want to add additional information in individual syllabi to meet the needs of their courses.

• **General Policies:** Instructors’ policy on the use of things such as beepers and cell phones and/or hand held programmable calculators should be covered in this section.

• **Cheating and Plagiarism:** This must be included in all syllabi and should include the penalties for incidents in a given class. Students should have a clear idea of what constitutes cheating in a given course.

• **Safety Concerns:** In some programs this may be a major issue. For example, “No student will be allowed in the safety lab without safety glasses.” General statements such as, “Items that may be harmful to one’s self or others should not be brought to class.”
• **Library/Learning Resources:** Since the development of the total person is part of our mission, assignments in the library and/or the Learning Resources Center should be included to assist students in enhancing skills and in using resources. Students should be encouraged to use the library for reading enjoyment as part of lifelong learning.

**Expanded Course Outline:**

I. Introduction to Computers  
   A. What is a computer?  
   B. Functions of a computer  
   C. Components of a computer

II. Introduction to Microsoft Windows  
    A. What is Windows?  
    B. Communicating with Windows  
    C. Launching an application program  
    D. File management

III. Microsoft Word  
     A. What is Word?  
     B. The Word window  
     C. Creating a document  
     D. Saving a document  
     E. Formatting paragraphs and characters in a document  
     F. Inserting ClipArt into a document  
     G. Printing a document  
     H. Creating a research paper in MLA documentation style  
     I. Changing margins  
     J. Changing line spacing  
     K. Working with headers and footers  
     L. Creating an alphabetical works cited page  
     M. Proofing and revising the research paper  
     N. Using the resume wizard to create a resume  
     O. Creating and adjusting tables  
     P. Working with styles  
     Q. Working with collecting and pasting  
     R. Setting and adjusting tab stops  
     S. Creating a bulleted list

IV. Microsoft Excel  
    A. What is Excel?  
    B. The Excel window  
    C. Entering data in a worksheet  
    D. Calculating a sum  
    E. Using the fill handle

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F. Formatting the worksheet
G. Adding a chart to the worksheet
H. Saving a worksheet
I. Printing a worksheet
J. Entering formulas into a worksheet
K. Using functions in a worksheet
L. Verifying formulas in a worksheet
M. Spell-checking a worksheet
N. Displaying and printing the formulas version of a worksheet
O. Importing external data from a web source using a web query
P. Changing sheet names
Q. Copying a cell’s format
R. Copying a range cells to a nonadjacent area
S. Inserting and deleting cells in a workbook
T. Freezing worksheet titles
U. Absolute and relative referencing
V. The IF function
W. Creating a pie chart
X. Modifying a pie chart
Y. Reordering, renaming and modifying sheet tabs
Z. What-if analysis

V. Microsoft Access
   A. What is Access?
   B. The Access window
   C. Creating a new database
   D. Saving and closing a table
   E. Adding records to a table
   F. Previewing and printing the contents of a table
   G. Using a form to view data
   H. Creating a report
   I. Creating a new query
   J. Including all fields in a query
   K. Entering criteria in a query
   L. Using compound criteria
   M. Sorting data in a query
   N. Joining tables
   O. Using calculated fields in a query
   P. Calculating statistics
   Q. Adding, changing, and deleting records from a database
   R. Change the structure of a table
   S. Using an update query
   T. Using a delete query
   U. Creating validation rules for a database
   V. Specifying referential integrity for a database
   W. Ordering records in a database
X. Creating and using indexes

VI. Microsoft Power Point
   A. What is Power Point?
   B. The Power Point window
   C. Choosing a design template for a presentation
   D. Creating slides
   E. Modifying text on slides
   F. Ending a slide show with a black slide
   G. Saving a slide show
   H. Navigating through a slide show
   I. Viewing a slide show in slide show view
   J. Checking a slide show for spelling and consistency
   K. Displaying a slide show in black and white
   L. Printing a presentation
   M. Creating a presentation in outline view
   N. Reviewing a presentation in slide sorter view
   O. Changing slide layout
   P. Adding Clip-Art to a slide
   Q. Moving and changing the size of Clip-Art on a slide
   R. Adding headers and footers
   S. Applying animation schemes
   T. Animating Clip-Art
   U. Running an animated slide show
   V. Printing an outline
Baton Rouge Community College

Academic Affairs Master Syllabus

Date Approved or Revised: August 08, 2008

Course Name: English Composition I
Course Number: ENGL 101

<table>
<thead>
<tr>
<th>Lecture Hrs.</th>
<th>Lab Hrs.</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Course Description: Introduces writing in forms of expressive and informative discourse with emphasis on writing as a learning, thinking process. Includes discussion of and practice in strategies used in prewriting, writing, and revising. Students must pass a departmental exit exam to pass the course.

Prerequisites: Appropriate placement test score or ENGL 091
Co-requisites: None

Suggested Enrollment Cap: 24

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Apply a variety of strategies to create, shape, and revise an essay
- Determine the purpose of a writing task
- Address a specific audience by adapting content and tone
- Write an introduction that grabs the reader's attention and signals the purpose of the text
- Write a specific, unified, restricted thesis statement
- Write focused and unified paragraphs with a clearly stated topic that supports and develops the thesis statement
- Develop ideas with specific examples, details, and illustrations
- Write a conclusion that reinforces the major idea of the essay without merely summarizing
- Write varied, coherent sentences using subordination, coordination, parallelism, and balance
- Write in standard edited English, free from major lapses in usage, mechanics, and spelling
- Integrate and document information using MLA guidelines at an introductory level

General Education Learning Outcomes: This course addresses the following General Education Learning Outcomes. Students will:
• demonstrate the ability to think critically, which includes collecting facts and making decisions based on them, comprehending and analyzing texts, and solving problems using methods of critical and scientific inquiry
• communicate effectively using standard written English
• use computer technology to access, retrieve, process and communicate information
• examine and identify cultural, ethnic, and gender diversity
• apply core values in making ethical, personal, social, and professional decisions

Assessment Measures:

- Instructor-designed tests and/or quizzes
- Instructor-created essay assignments graded with a departmental rubric
  - Four to six essays (600 – 750 words minimum)
  - Total word count for essays must be at least 4000
  - Narrative and/or descriptive essays must NOT constitute the majority of assignments
  - While a research project may be included, the majority of the essays should not be research based, allowing for the student’s portfolio to be assessed for course learning outcomes and core competencies.
  - One essay must be at least 750 words
  - Students must maintain a folder with all graded essays and drafts
- Departmental exit exam given at the end of the semester and graded with the departmental rubric

Information to be included on the Instructors’ Course Syllabi:

• Exit Exam: At the end of the semester, students will be required to take an exit exam. In order to receive a passing grade for ENGL 101, students must pass the exit exam/folder challenge and earn a cumulative “C” or better on coursework.

• Disability Statement: Baton Rouge Community College seeks to meet the needs of its students in many ways. See the Office of Disability Services to receive suggestions for disability statements that should be included in each syllabus.

• Grading: The College grading policy should be included in the course syllabus. Any special practices should also go here. This should include the instructor’s and/or the department’s policy for make-up work. For example in a speech course, “Speeches not given on due date will receive no grade higher than a sixty” or “Make-up work will not be accepted after the last day of class.”

• Attendance Policy: Include the overall attendance policy of the college. Instructors may want to add additional information in individual syllabi to meet the needs of their courses.
• **General Policies:** Instructors’ policy on the use of things such as beepers and cell phones and/or hand held programmable calculators should be covered in this section.

• **Cheating and Plagiarism:** This must be included in all syllabi and should include the penalties for incidents in a given class. Students should have a clear idea of what constitutes cheating in a given course.

• **Safety Concerns:** In some programs this may be a major issue. For example, “No student will be allowed in the safety lab without safety glasses.” General statements such as, “Items that may be harmful to one’s self or others should not be brought to class.”

• **Library/ Learning Resources:** Since the development of the total person is part of our mission, assignments in the library and/or the Learning Resources Center should be included to assist students in enhancing skills and in using resources. Students should be encouraged to use the library for reading enjoyment as part of lifelong learning.

**Expanded Course Outline:**

I. **Writing Process**
   a. Strategies to create, shape, and revise an essay
   b. Determining the purpose of a writing task
   c. Addressing a specific audience by adapting content and tone

II. **Basic Essay Structure**
   a. Thesis statement
   b. Writing paragraphs with a clearly stated or implied topic that supports and develops the thesis statement
   c. Writing introductions that grabs the reader’s attention and signals the purpose of the text
   d. Developing ideas with specific examples, details, and illustrations
   e. Writing a conclusion that reinforces the major idea of the essay without merely summarizing

III. **Grammar, Mechanics and Style**
   a. Write varied, coherent sentences using subordination, coordination, parallelism, and balance
   b. Write in standard edited English, free from major lapses in usage, mechanics, and spelling

IV. **MLA guidelines for documentation**

APPENDIX C: STUDENT RATING OF FACULTY ON-GROUND SURVEY

Baton Rouge Community College Online Student Rating of Faculty Survey

Student Rating of Faculty

Correct Mark | Incorrect Marks

You will need about 15 minutes to complete the Student Rating form. BRCC will tabulate student ratings for this course and share results with your instructor after she/he submits final grades. BRCC uses student ratings as a means for faculty to be more aware of how students perceive their teaching so that faculty may improve instruction. Thank you for conscientiously responding to these statements and questions.

- I plan on completing my associate degree at BRCC: ☐ Yes ☐ No ☐ Do not know

In connection with this course:

- This course is ................. ☐ a requirement ☐ an elective ☐ Do not know
- I study .............................................. ☐ 0-2 hours per week ☐ 3-4 hours per week ☐ 5-6 hours per week ☐ 7+ hours per week
- The workload for this course is .............................................. ☐ about right ☐ too little ☐ too much
- As a result of taking this course, my interest in the subject ....... ☐ increased ☐ decreased ☐ remained the same
- I ask my instructor questions when necessary .............................................. ☐ frequently ☐ sometimes ☐ seldom ☐ never

My Instructor:

1. provided me with a copy of or access to course syllabus within the first week of class .......... ☐ Yes ☐ No ☐ Do not know

Please use the following scale in rating your instructor on the following criteria:

5 - Very Effectively 4 - Effectively 3 - Moderately Effectively 2 - Ineffectively 1 - Very Ineffectively

My Instructor:

2. prepares for class meetings ................................................................. ☐ ☐ ☐ ☐ ☐
3. explains subject matter clearly ............................................................ ☐ ☐ ☐ ☐ ☐
4. answers questions clearly ................................................................. ☐ ☐ ☐ ☐ ☐
5. relates course material to real-life situations when appropriate .......... ☐ ☐ ☐ ☐ ☐
6. demonstrates interest in my success .................................................. ☐ ☐ ☐ ☐ ☐
7. provides opportunities for out of class assistance ................................... ☐ ☐ ☐ ☐ ☐
8. encourages me to participate in class (activities, discussions, group work) .......... ☐ ☐ ☐ ☐ ☐
Please use the following scale in rating your instructor on the following criteria:
5 - Very Effectively  4 - Effectively  3 - Moderately Effectively
2 - Ineffectively  1 - Very Ineffectively

My Instructor:

9. connects assignments to learning outcomes ...........................................
   Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

10. treats students with respect ............................................................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

11. displays enthusiasm about subject matter ...........................................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

12. uses examples to clarify subject matter .............................................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

13. uses a grading policy that is clear ...................................................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

14. provides helpful comments or feedback on work ..................................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

15. demonstrates knowledge of subject matter ......................................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

16. makes relevant use of class time ......................................................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

17. holds my interest during class .........................................................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

18. connects present topics to previous topics ......................................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

19. summarizes major points at the end of a lecture or an activity ..........
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

20. seeks feedback from students on whether they understand material .......
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

21. refers to the text/reading in the course ..........................................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

22. relates test questions to material covered or assigned .....................
    Very Effectively  Effectively  Moderately Effectively  Ineffectively  Very Ineffectively

Rev. 10-9-08
REFERENCES


VITA

Tireka Patrice Cobb was born in San Leandro, California, but moved to Baton Rouge, Louisiana as a small child. She graduated from Belaire Medical Magnet High School in 1990. Tireka graduated from Southeastern Louisiana University located in Hammond Louisiana in 2001 with a Bachelor of Arts degree in English and Sociology. She received a master’s degree in business administration from the Baton Rouge campus of the University of Phoenix in 2007. Prior to entering the doctoral program in educational technology at Louisiana State University, she worked as the Assistant Director of Facilities and Risk Management at the Louisiana Community and Technical College System. Currently, Tireka works as a consultant and resides in Baton Rouge.